The Third Annual
STUDENT RESEARCH SYMPOSIUM
March 5 and 6, 2010
Celebrating the achievements of San Diego State University student research, scholarship and creative activity
Celebrating the achievements of San Diego State University students in research, scholarship & creative activity
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Map of the Aztec Center is on the inside of the front cover.
Welcome from the President

March 5, 2010

Dear Colleagues and Guests:

It is with great pleasure I welcome you to San Diego State University’s 2010 Student Research Symposium. The symposium is a university-wide event to recognize and celebrate the outstanding research, scholarship, and creative activity of our undergraduate and graduate students. The symposium also identifies our most talented students who will represent SDSU at the annual California State University Student Research Competition.

This year over 400 students are presenting their original scholarly work in a public forum that introduces community members, partners, students, and guests to our many outstanding academic programs. Moreover, the symposium provides a venue for sharing academic excellence and discovery; and it demonstrates SDSU’s commitment to developing innovative solutions for our region, nation, and the world. All of these goals advance the vision of SDSU as a top urban research university.

To plan and execute an event of this magnitude required the efforts of dedicated faculty and staff members. In addition, over 250 judges have volunteered to share their time and expertise in evaluating oral and poster presentations. These collective efforts demonstrate our commitment to fostering student scholarship and professional development, and I am grateful to all who have worked so hard on behalf of our students and the university.

Best wishes for a great symposium.

Sincerely,

Stephen L. Weber, President
San Diego State University
Thursday Afternoon, March 4, 2010
1:00 am – 4:00 pm  Registration
Montezuma Hall Lounge

Friday, March 5, 2010
7:00 am – 4:00 pm  Registration
Montezuma Hall Lounge

A Sessions
8:00 am – 10:30 am  Session A: Poster Presentations
Montezuma Hall South
8:00 am  Session A: Oral Presentations
Aztec Center
10:00 am  Session A: Oral Presentations
Aztec Center

B Sessions
11:30 am – 2:00 pm  Session B: Poster Presentations
Montezuma Hall South
1:00 pm  Session B: Oral Presentations
Aztec Center
3:00 pm  Session B: Oral Presentations
Aztec Center

C Sessions
3:00 pm – 5:30 pm  Session C: Poster Presentations
Montezuma Hall South

Saturday Morning, March 6, 2010
7:00 am – 10:30 am  Registration
Montezuma Hall Lounge

D Sessions
8:00 am  Session D: Oral Presentations
Aztec Center
10:15 am  Session D: Oral Presentations
Aztec Center

12:00 pm – 1:15 pm  Awards Reception, Aztec Center Courtyard
1:15 pm – 2:30 pm  Awards Ceremony, Montezuma Hall
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Patrick L. Abbott
Professor Emeritus

Some Lessons from California Earthquakes

Dr. Pat Abbott has been a professor at San Diego State University since 1971. During that time, not only has he advised numerous geology theses, he also developed the popular general education course, ‘Natural Disasters’. Pats research interests include sedimentology of Mesozoic and Cenozoic rocks of southwestern U.S. and northwestern Mexico, correlation of tectonically displaced terranes, impact of humankind upon the earth, ancient soils and climates, archaeological geology, carbonate depositional environments, and hydrology.

He has had the public eye for over three decades with thousands of appearances on television and radio as well as frequent coverage of professional activities in all local newspapers.

Since Pat’s retirement he has continued revisions to his textbook, Natural Disasters, in its 7th edition, traveled the world giving scientific lectures on cruise lines, and has been recognized for his unyielding devotion and service to the geologic community, receiving the A. Eugene Fritsche Lifetime Achievement Award from the Pacific Section SEPM.
Awards will be presented at the Reception on Saturday, March 6, to recognize the most outstanding presentations of research, scholarship, and creative activity at the Student Research Symposium. These are:

**President’s Award**

One President’s Award will be given to the most outstanding presentation in each of the five categories—Physical Sciences; Health Studies and Life Sciences; Engineering, Informatics and Business; Humanities, Creativity, and the Arts; and Social, Behavioral and Educational Studies—and then to the next five highest rated presentations across all categories.

Those receiving a President’s Award will represent San Diego State University at the CSU Student Research Competition on April 30 and May 1 at San Jose State University.

**Dean’s Award**

Dean’s Awards of $250 each are given for oral presentations. Two awards will be given to the top two presentations in each college and one award given to the top presentation from the Imperial Valley Campus.

**Provost’s Award**

Twelve Provost’s Awards of $150 each will be given for the most outstanding poster presentations across all categories.
12:00 – 2:30 pm, Saturday, March 6

The Awards Reception is open to all student presenters, mentors, and judges.

Welcome
Thomas R. Scott, Vice President for Research

Keynote Address
Patrick L. Abbott, Professor Emeritus

Award Ceremony and Student Recognition

Dean’s Awards
Paul Wong, College of Arts and Letters
Gail K. Naughton, College of Business Administration
Ric A. Hovda, College of Education
David T. Hayhurst, College of Engineering
Marilyn Newhoff, College of Health and Human Services
Joyce M. Gattas, College of Professional Studies and Fine Arts
Stanley Maloy, College of Sciences
Stephen B. W. Roeder, Imperial Valley Campus

Provost’s Awards
Nancy A. Marlin

President’s Greeting and Awards
Stephen L. Weber

Closing Remarks
Thomas R. Scott, Vice President for Research
### Sessions: Friday, March 5

#### Session A-1
**Poster: Psychology I**
Friday, March 5, 2010, 8:00 am – 10:30 am  
Location: Montezuma Hall South

1. **Poster #1**  8:00-9:30 am  
   *Hybrid Views on Origin of Species and Implications for Cognitive Processing*  
   Allison Rosales, Psychology (U)

2. **Poster #2**  8:00-9:30 am  
   Rosemary Meza, Psychology (U)

3. **Poster #3**  8:00-9:30 am  
   *The Effects of Childhood Responsibility on Later Development*  
   Stephanie Van Stralen, Psychology (U)

4. **Poster #4**  8:00-9:30 am  
   *Language and Family: The Foundation of Communication*  
   Sarah Garcia, Psychology (U)

5. **Poster #5**  8:00-9:30 am  
   *Spending Time with the Children?: An Experimental Study of the Commuter Family*  
   Jessica Mendel, Psychology (U)

6. **Poster #6**  8:00-9:30 am  
   *The Effect of Communication in a Family during Marriage vs. Divorce*  
   Michael Garrett, Psychology (U)

7. **Poster #7**  8:00-9:30 am  
   *Loneliness, Time Use, and Experienced Affect in Older Adults*  
   Lisa Damron, Interdisciplinary Studies (U)

8. **Poster #8**  8:00-9:30 am  
   *The Irony of Harmony Revisited: Intergroup Contact, Inequality, and Action*  
   Bradley Weisz, Psychology (U)

9. **Poster #9**  8:00-9:30 am  
   *Decontextualized Language in Preschool Narratives*  
   Anna Fitzhugh, Psychology (M)

10. **Poster #10**  8:00-9:30 am  
    *Behavioral Indices of Grappling*  
    Linda Phan, Psychology (M)

#### Session A-2
**Poster: Cognitive and Social Sciences I**
Friday, March 5, 2010, 8:00 am – 10:30 am  
Location: Montezuma Hall South

11. **Poster #11**  8:30-10:00 am  
    *Effectiveness of a Skin Cancer Education Video on the Deaf*  
    Kadie Harry, Psychology (U)

12. **Poster #12**  8:30-10:00 am  
    *He Said She Said: Voice Acoustics and Gender Stereotypes*  
    Mollie Meyer, Psychology (U)

13. **Poster #13**  8:30-10:00 am  
    *The Relationship Between Vocal Femininity and Perceptions of Pleasantness*  
    Karina Medved, Psychology (U)

14. **Poster #14**  8:30-10:00 am  
    *The Effect of Role Model Similarity on Performance under Stereotype Threat*  
    Christopher Cole, Psychology (M)

15. **Poster #15**  8:30-10:00 am  
    *In Their Own Voices: Exploring Physical Activity Intervention Approaches among Native Hawaiian and Pacific Islanders*  
    Kelley Thompson, Public Health (M)

16. **Poster #16**  8:30-10:00 am  
    *Alcohol Use among Senior Living Centers in Southwest California*  
    Brandi Martell, Public Health (M)

17. **Poster #17**  8:30-10:00 am  
    *Written Expository Texts in Children with Perinatal Stroke*  
    Carina Fernandez, Psychology (M)

18. **Poster #18**  8:30-10:00 am  
    *Substance Use Correlates of Smoking among Emergency Department Patients*  
    Cameron McCabe, Psychology (M)

19. **Poster #19**  8:30-10:00 am  
    *Injection First: A Unique Group of Injection Drug Users in Tijuana, Mexico*  
    Meghan Morris, Global Health (D)
Session A-3  
Poster: Child Language Acquisition  
Friday, March 5, 2010, 8:00 am – 10:30 am  
Location: Montezuma Hall South

20 Poster #20  8:30-10:00 am  
Influences of Home, School, and Neighborhood Environments on Youth Physical Activity  
Rachel Millstein, Clinical Psychology (D)

21 Poster #21  9:00-10:30 am  
Influence of Phonology on AAE-speaking Children’s Marking of Past Tense  
Nicole Rosner, Speech Language & Hearing Sciences (U)

22 Poster #22  9:00-10:30 am  
Grammatical Morphology in Children Learning English as a Second Language  
Sarah Bailey, Speech, Language, & Hearing Sciences (U)

23 Poster #23  9:00-10:30 am  
The Grammatical Development of ELL Kindergartners as Analyzed by IPSyn  
Ashley Galletta, Speech and Language Pathology (M)

24 Poster #24  9:00-10:30 am  
The Importance of Decoding vs. Vocabulary Knowledge for Literacy Acquisition  
Kelly Johnston, Speech Language & Hearing Sciences (M)

25 Poster #25  9:00-10:30 am  
An Exploration of English Language Learner's Morphology  
Nicolas Cerney, Speech, Language & Hearing Sciences (M)

26 Poster #26  9:00-10:30 am  
Word Learning and Habituation in Young Children at 18 Months  
Erica Ellis, Language & Communicative Disorders (D)

Session A-4  
Poster: Signal Transduction and Gene Expression  
Friday, March 5, 2010, 8:00 am – 10:30 am  
Location: Montezuma Hall South

27 Poster #27  8:00-9:30 am  
Calcium Pathway Gene Expression Changes in Neonatal Cardiocytes Following Rosiglitazone Treatment  
Kirubel Gebresenbet, Biology (U)

28 Poster #28  8:00-9:30 am  
The Potential for Manual Lateralization in Captive Siamangs (Hylobatidae syndactylus)  
Brittany Sabga, Biology emphasis Zoology (U)

Session A-5  
Poster: Microbiology  
Friday, March 5, 2010, 8:00 am – 10:30 am  
Location: Montezuma Hall South

29 Poster #29  8:00-9:30 am  
The Effect of Sex Hormones on Cardiac Progenitor Cell Proliferation Rates  
Elizabeth Gonzales, Biology (U)

30 Poster #30  8:00-9:30 am  
The Functions of the SPX Domain-Containing Proteins in Plant Cold Stress Tolerance  
Edgar Campos, Biology and Psychology (U)

31 Poster #31  8:00-9:30 am  
Gene Regulation Involving the Neural MicroRNA miR-124 and its Downstream Targets  
Jerry Chen, Computational Sciences (D)

32 Poster #32  8:00-9:30 am  
Recognition Site of TACE Cleavage in CSF-1 Receptor Processing  
Arrash Vahidi, Biochemistry (M)

33 Poster #33  8:00-9:30 am  
Localization of CSF-1 Receptor Intracellular Doman in the Nucleus after its Release from the Plasma Membrane by Regulated Intramembrane Proteolysis  
Kirthika Haridass, Cell and Molecular Biology (M)
39 Poster #39  8:30-10:00 am  
**Group B Streptococcus Vaginal Niche Establishment and Interaction with Native Microflora**  
Mansi Garg, Cell and Molecular Biology (M)

40 Poster #40  8:30-10:00 am  
**Investigating Virus Life Cycles in the Oxygen Minimum Zone Off Iquique, Chile**  
Noriko Cassman, Microbiology (M)

41 Poster #41  8:30-10:00 am  
**Designer Virus: Assembling Genes from Different Viruses to Provide a Versatile and Efficient Protein Expression System**  
Wesley Williams, Biology (M)

42 Poster #42  8:30-10:00 am  
**Analyzing the Effects on Bacterial Cells of Co-Treatments with a DNA Repair Inhibitor and a Topoisomerase II Inhibitor**  
Ilham Naili, Cell and Molecular Biology (D)

43 Poster #43  8:30-10:00 am  
**The Role of Autophagy during Coxsackievirus Infection in Neural Stem Cells**  
Jenna Tabor-Godwin, Cell and Molecular Biology (D)

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Session A-6  
**Poster: Foods and Nutrition**  
Friday, March 5, 2010, 8:00 am – 10:30 am  
Location: Montezuma Hall South

44 Poster #44  9:00-10:30 am  
**Effects of Green Tea on Inflammation in Atherogenic Diet-Fed Rats**  
Antoinette Averna, Foods and Nutrition (U)

45 Poster #45  9:00-10:30 am  
**Effects of Dark Chocolate on Lipopolysaccharide-induced Inflammation**  
Afarin Fullen, Nutrition (U)

46 Poster #46  9:00-10:30 am  
**Dark Chocolates Inhibit Early Preneoplastic Lesions in the Colon Due to their High Antioxidant Capacity and Downregulation of Inflammation Involved Gene Expression**  
Emily Delulio, Nutritional Sciences (M)

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Session A-7  
**Poster: Astronomy and Physics**  
Friday, March 5, 2010, 8:00 am – 10:30 am  
Location: Montezuma Hall South

48 Poster #48  8:00-9:30 am  
**High and Low Resolution Fresnel Lens on an LCD**  
Jason Andreoli, Physics (U)

49 Poster #49  8:00-9:30 am  
**Characterization of Carbon Agglomerates Created via Methane Pyrolysis inside a Carbon Particle Generator**  
Paul Schroeder, Physics (U)

50 Poster #50  8:00-9:30 am  
**An I-GALFA Study of Supernova Remnant G54.4-0.3 (HC40)**  
Daria Auerswald, Astronomy (U)

51 Poster #51  8:00-9:30 am  
**Searching for False Nova in M31**  
Johnathan Rice, Astronomy (M)

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Session A-8  
**Poster: Mathematics and Statistics**  
Friday, March 5, 2010, 8:00 am – 10:30 am  
Location: Montezuma Hall South

53 Poster #53  8:30-10:00 am  
**Computational Study of TTQ Reaction Kinetics**  
Kirsten Ivey, Applied Mathematics (U)

54 Poster #54  8:30-10:00 am  
**Hottest Years of the Contiguous USA since 1895**  
Tobias Regele, Applied Mathematics (M)

55 Poster #55  8:30-10:00 am  
**A New Shannon Sampling Theory: From a Circle to a Sphere**  
Julien Pierret, Statistics (M)

56 Poster #56  8:30-10:00 am  
**Bayesian Data Blending for Measuring Cloud Fraction**  
Jeff Ledahl, Computational Statistics (D)
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<thead>
<tr>
<th>Session A-9</th>
<th>Oral and Poster Presentations</th>
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<tr>
<td><strong>Poster: Computer and Computational Sciences I</strong>&lt;br&gt;Friday, March 5, 2010, 8:00 am – 10:30 am&lt;br&gt;<strong>Location:</strong> Montezuma Hall South</td>
<td></td>
</tr>
<tr>
<td><strong>Poster #57 9:00-10:30 am</strong>&lt;br&gt;<em>Utilizing 3D Video Game Technology for an Immersive Laboratory Experience</em>&lt;br&gt;Mark Thompson Jr., Computer Science (M)</td>
<td></td>
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<tr>
<td><strong>Poster #58 9:00-10:30 am</strong>&lt;br&gt;<em>Er<strong>3+ and Yb</strong>3+ Complexes with Fluorinated Ligands for Near-Infrared Electroluminescence Applications</em>&lt;br&gt;Pablo Martín-Ramos, Electrical Engineering (M)</td>
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<tr>
<td><strong>Poster #59 9:00-10:30 am</strong>&lt;br&gt;<em>CyberWeb</em>&lt;br&gt;Carny Cheng, Computational Science (M)</td>
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<tr>
<td><strong>Poster #60 9:00-10:30 am</strong>&lt;br&gt;<em>Performance Results using Distributed Coupling Toolkit for Earth Sciences Models</em>&lt;br&gt;Dany De Cecchis, Computational Sciences (D)</td>
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<tr>
<td><strong>Poster #61 9:00-10:30 am</strong>&lt;br&gt;<em>On Packet Fragmentation of H.264 Video for Goodput Maximization</em>&lt;br&gt;Kashyap Kambhatla, Engineering Science (D)</td>
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<tr>
<td><strong>Poster #62 9:00-10:30 am</strong>&lt;br&gt;<em>Smart Slice Prioritization in H.264 AVC</em>&lt;br&gt;Seethal Paluri, Computational Science (D)</td>
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<tr>
<td><strong>Session A-10</strong>&lt;br&gt;Oral Presentation: Explorations of the Visual&lt;br&gt;Friday, March 5, 2010, 8:00 am&lt;br&gt;<strong>Location:</strong> Backdoor</td>
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<tr>
<td><strong>8:00 am</strong>&lt;br&gt;<em>What’s Art Got to Do With It?</em>&lt;br&gt;Robert Steinberger, Art (Multimedia) (U)</td>
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<tr>
<td><strong>8:15 am</strong>&lt;br&gt;<em>Theatre as Grief Therapy: Healing Through the Process of Incorporating Autobiographical Content into an Original Dramatic Work</em>&lt;br&gt;Joan Hurwit, Theatre Arts (M)</td>
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<tr>
<td><strong>Session A-11</strong>&lt;br&gt;Oral Presentation: Behavioral Responses in Health Care&lt;br&gt;Friday, March 5, 2010, 8:00 am&lt;br&gt;<strong>Location:</strong> Casa Real</td>
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<tr>
<td><strong>8:00 am</strong>&lt;br&gt;<em>Automatic Interpretation in Dysphoria</em>&lt;br&gt;Alexandra Cowden Hindash, Psychology (U)</td>
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<tr>
<td><strong>8:15 am</strong>&lt;br&gt;<em>The Effects of Betaine on Hyperactivity Associated with Developmental Alcohol Exposure</em>&lt;br&gt;Yosef Nacach, Psychology (U)</td>
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<tr>
<td><strong>8:30 am</strong>&lt;br&gt;<em>Metabolic Responses to Exergaming Among Older Adults</em>&lt;br&gt;Kristi Robusto, Exercise Physiology (M)</td>
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<td><strong>8:45 am</strong>&lt;br&gt;<em>Construct Validity of the Item-Specific Deficit Approach in HIV</em>&lt;br&gt;Jordan Cattie, Psychology (D)</td>
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<tr>
<td><strong>9:00 am</strong>&lt;br&gt;<em>A Randomized, Double Blind, Placebo-Controlled Pilot Study of Memantine in Huntington’s Disease</em>&lt;br&gt;Luis Medina, Clinical Psychology (D)</td>
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<tr>
<td><strong>Session A-12</strong>&lt;br&gt;Oral Presentation: Gender Studies&lt;br&gt;Friday, March 5, 2010, 8:00 am&lt;br&gt;<strong>Location:</strong> Chantico</td>
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<tr>
<td><strong>8:00 am</strong>&lt;br&gt;<em>Queer Ecofeminism and the Liberation of Mother Nature</em>&lt;br&gt;Alicia Nichols, English (U)</td>
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</table>
78 8:15 am
Aristotle the Sex Therapist: Modern Sex From an Ancient Perspective
Matt Jakstis, Philosophy (U)

79 8:30 am
A Queer Reading of The Merchant of Venice
Aria Fani, Comparative Literature (U)

80 8:45 am
Desire, Disruption and Liberation in the Queer(ed) Mosh-Pit
Jennifer Gutierrez, Comparative Literature and Chicana and Chicano Studies (U)

81 9:00 am
Latino Drag Queens: Negotiating Sexual, Class, and Racial/Ethnic Identities
Alejandra Gonzalez, Chicana/o Studies (U)

82 9:15 am
Gender Variant Neologisms
Kelly Meehan, Sociology (M)

Session A-14
Oral Presentation: Anthropology and Archeology
Friday, March 5, 2010, 8:00 am
Location: Council Chambers

83 8:00 am
“The First White Man On The Mountain”: Archaeological, Historical, and Cultural Examinations of Nate Harrison’s Identity
Shelby Gunderman, Anthropology (M)

84 8:15 am
What is Industry?: An Analysis of Industrious Activity at the Nate Harrison Historical Archeology Site
Kristin Tennesen, Anthropology (M)

85 8:30 am
Island Gardens in a Sea of Instability: Crop Choice, Decision-Making, and Environmental Uncertainties in the Western Solomon Islands
Douglas La Rose, Applied Anthropology (M)

86 8:45 am
Ecological and Cultural Interconnections Between the Guizhou Snub-nosed Monkey (Rhinopithecus brelichi) and Local Communities at Fanjingshan National Nature Reserve, China
Amanda Sheres, Anthropology (M)

Session A-15
Oral Presentation: Young Adult Relationships
Friday, March 5, 2010, 8:00 am
Location: Presidential Suite

87 8:00 am
Until Death Do Us Part? Aggression and Mental Health Among Newlywed Mexican-American Couples
Elsa Farias, Psychology (U)

88 8:15 am
Heather Kennedy, Management (U)

89 8:30 am
Helpless Attributions as a Mediator between Dating Violence Victimization and Depression: Differences by Gender
Jennifer Gomez, Psychology (U)

90 8:45 am
College Students’ Perceptions of Abusive Dating Relationships
Briana Bashaw, Psychology, (U)

91 9:00 am
Linking Sibling Abuse, Depression, and Victimization of Dating Violence: A Pathway Analysis
Miguel Martin Del Campo, Psychology (U)

92 9:15 am
Identity Theft among the Young Adult Population
Tiffany Eskilson, Business Administration (M)

Session A-16
Oral Presentation: Chemistry
Friday, March 5, 2010, 8:00 am
Location: Quetzalcoatl A

93 8:00 am
Electrochemical Studies of the Roles of Hydrogen Bonding and Proton Transfer in the Non-Aqueous Redox Chemistry of p-phenylenediamines
Laurie Clare, Chemistry (U)
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<th>Session</th>
<th>Date</th>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>A-17</td>
<td>Friday, March 5, 2010</td>
<td>8:00 am</td>
<td>Stress Relaxation in Homogeneous Sands</td>
<td>Laura Adona, Civil Engineering (U)</td>
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<td>Friday, March 5, 2010</td>
<td>8:15 am</td>
<td>Evidence of a Propagating Breakage Front in Granular Materials Loaded Uniaxially</td>
<td>Johan Gallay, Civil Engineering (M)</td>
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<td></td>
<td>Friday, March 5, 2010</td>
<td>8:30 am</td>
<td>Stress Relaxation in Heterogeneous Sand</td>
<td>Arce Doble, Civil Engineering (M)</td>
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<td></td>
<td>Friday, March 5, 2010</td>
<td>8:45 am</td>
<td>Seismic Analysis of Sedimentation and Deformation of Ellesmerian Strata, Umiat Basin, Alaska North Slope: Evidence for Carboniferous Wrench Faulting</td>
<td>Bryant Fulk, Geological Sciences (M)</td>
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<td></td>
<td>Friday, March 5, 2010</td>
<td>9:00 am</td>
<td>Monitoring the Oedometric Compression of Sands with Acoustic Emissions</td>
<td>Fabio Fernandes, Geotechnical (M)</td>
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<tr>
<td>A-18</td>
<td>Friday, March 5, 2010</td>
<td>10:00 am</td>
<td>Refrigerators: Unexpected Figurations of Power and Oppression</td>
<td>Carmen Rodriguez, Women's Studies (U)</td>
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<td></td>
<td>Friday, March 5, 2010</td>
<td>10:15 am</td>
<td>Metales y Derivados: Women's Transnational Mobilization for Environmental Justice</td>
<td>Carolina Prado, Women's Studies/ Sustainability and Environmental Studies (U)</td>
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<td>Friday, March 5, 2010</td>
<td>10:30 am</td>
<td>Excessively Manipulated: Cornrows in the Courtroom</td>
<td>Kimberly Burke, Women's Studies (M)</td>
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<td>Friday, March 5, 2010</td>
<td>10:45 am</td>
<td>Facing the Animal: The Place of Animals in Levinas</td>
<td>Aaron Elliott, Philosophy (M)</td>
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<td></td>
<td>Friday, March 5, 2010</td>
<td>11:00 am</td>
<td>The Rhythm of the Revolution</td>
<td>Cristina Dominguez, Women's Studies (M)</td>
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<td>Friday, March 5, 2010</td>
<td>11:15 am</td>
<td>The Spirit of Houston: Processes of Inclusion</td>
<td>Jessica Nare, Women's Studies (M)</td>
</tr>
<tr>
<td>A-19</td>
<td>Friday, March 5, 2010</td>
<td>10:00 am</td>
<td>A Molecular Time Clock Approach for Calculating Coxackievirus Replication Rates during Persistence in the Heart</td>
<td>Uzoagu Okonkwo, Biochemistry (U)</td>
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<td>Friday, March 5, 2010</td>
<td>10:15 am</td>
<td>Immune Infiltration and Racial Disparities in Colon Cancer</td>
<td>Angelique Hill, Cell and Molecular Biology (U)</td>
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<td></td>
<td>Friday, March 5, 2010</td>
<td>10:30 am</td>
<td>Hypoxic Pulmonary Vasoconstriction is not Attenuated by Allicin in Healthy Volunteers</td>
<td>Keaton Lesnik, Microbiology (U)</td>
</tr>
</tbody>
</table>
114 10:45 am  
*CNS Developmental Defects Following Recovery from Enterovirus Infection During the Neonatal Period*  
Sonia Maciejewski, Microbiology (U)

10:00 am  
*Tumor Microenvironmental Control*  
Ernesto Enrique, Biology (U)

111 10:00 am  
*The Association between Socioeconomic Status, Income Tax Compliance and Remitting among Brazilian Migrants in Metropolitan Boston*  
Betsy Lee, Mathematics Single Subject Teaching (U)

116 10:15 am  
*Concrete Column Tolerance Statistical Evaluation*  
Robert Carr, Statistics (M)

117 10:30 am  
*Nonparametric Bayesian Modeling of Scaled Item Response Data*  
Jose Fuentes, Statistics (M)

118 10:45 am  
*Multivariate Nonparametric Techniques for Nonlinear Model Diagnostics*  
Craig Massey, Computational Statistics (D)

119 11:00 am  
*Investigating the Accuracy of Prediction Markets*  
Jonathan Wilson, Computational Statistics (D)

122 10:30 am  
*A Philosophical Endeavor into a Female Philosopher*  
Karl Kyler, Philosophy (U)

123 See Session B-20

124 11:00 am  
*Charles S. Peirce’s Idea of Evolutionary Love*  
Tim Sparks, Philosophy (M)

125 10:00 am  
*Coloring the City: Race, Renewal, and the Interstate in East St. Louis, Illinois, 1958-1971*  
Michael Brickey, History (M)

126 10:15 am  
*Demography of Burmese Refugee Population in San Diego*  
Brigitte Young, Anthropology (U)

127 10:30 am  
*Analysis of the Production Planning and Control Process of a Residential Project*  
Ana Catarina Pestana, Civil Engineering (M)

128 10:45 am  
*Promoting Health and Sustainability in the Golden Hill Neighborhood*  
Jefferson Gamoning, Public Administration (M)

130 10:00 am  
*Reducing IV Site Complications with EBP*  
Syllenia Favila, Nursing (U)

131 10:15 am  
*Relationship between Muscle Fatigue and the Slow Component*  
Ailish White, Exercise Physiology (M)
Session A-24
Oral Presentation: Materials and Mechanical Engineering
Friday, March 5, 2010, 10:00 am
Location: Quetzalcoatl B

132  10:30 am
An Evaluation of Respiratory Suppression as a Means of Motion Management In Early Stage Lung Cancer Using TomoTherapy Stereotactic Radiotherapy
Andrew Soderstrom, Radiological Health Physics (M)

133  10:45 am
Effect of Uneven Surface of Incidence on Dose Distribution for Electron Beams during Radiotherapy
Niral Shah, Radiological Health Physics (M)

134  11:00 am
Relationship between Chronic Stress and Carotid Intima-media Thickness (IMT) in Elderly Alzheimer’s Disease Caregivers
Susan Roepke, Clinical Psychology (D)

135  11:15 am
Do Developmental Changes in Cerebral Blood Flow Affect the BOLD FMRI signal?
Mishaela DiNino, Psychology (M)

Session B-1
Poster: Psychology II
Friday, March 5, 2010, 11:30 am – 2:00 pm
Location: Montezuma Hall South

141 Poster #2    11:30 am-1:00 pm
Do Companies Help their Commuting Employees?
Trevor Cherr, Psychology (U)

142 Poster #3    11:30 am-1:00 pm
Does Gender Make a Difference when Assessing the Positives and Negatives of Commuting in Couples?
Nancy Chavez, Psychology (U)

143 Poster #4    11:30 am-1:00 pm
Becoming the Eagle: Cultural Gesture Practices Influence Perspective-Taking of Non-Human Animals
Kelsey Novi, Psychology (U)

144 Poster #5    11:30 am-1:00 pm
Collectivism vs. Individualism: Effects of Group vs. Individual Work on Comfort Levels
Ashley Pennoyer, Psychology (U)

145 Poster #6    11:30 am-1:00 pm
Reconsidering Ethnic Identity Categories: Differences in Ethnic Identity Indicators among Students Differing in the use of Broad Versus Specific Ethnic Descriptors
Alejandra Morlett, Psychology (U)

146 Poster #7    11:30 am-1:00 pm
Self-efficacy In Science among American Indian Youth
Saturnino Yniguez, Psychology (U)

147 Poster #8    11:30 am-1:00 pm
Marital Distress, Acculturation, and Acculturative Stress in Mexican American Couples
Priscilla Rios, Psychology (U)

148 Poster #9    11:30 am-1:00 pm
Infant Temperament: Predictor in Behavior Problems in Early Elementary School
Amanda Chiapa, Developmental Psychology (M)

149 Poster #10   11:30 am-1:00 pm
Recruiting for Voluntary LGBT training
Richard Drake Jr, Industrial/Organizational Psychology (M)
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<th>Session B-2</th>
<th>Poster: Cognitive and Social Sciences</th>
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<tr>
<td>Location: Montezuma Hall South</td>
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<tr>
<td>150 Poster #11 12:00-1:30 pm</td>
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<tr>
<td><em>Targeted Community Assessment: Pediatric Healthcare Services in Imperial Valley</em></td>
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<td>Ruth Perry, Nursing (U)</td>
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<tr>
<td>151 Poster #12 12:00-1:30 pm</td>
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<tr>
<td><em>Acculturation and Body Dissatisfaction among Latino College Students</em></td>
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<td>Duvia Lara, Psychology (U)</td>
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<tr>
<td>152 Poster #13 12:00-1:30 pm</td>
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<tr>
<td><em>Body Image and Alcohol Use in Mexican-American College Students</em></td>
<td></td>
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<tr>
<td>Joseph Pipkin, Psychology (U)</td>
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<tr>
<td>153 Poster #14 12:00-1:30 pm</td>
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<tr>
<td><em>Cancer and Fatigue among Latinos and Latino-Americans</em></td>
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<td>Aliss Ramos, Psychology (U)</td>
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<tr>
<td>154 Poster #15 12:00-1:30 pm</td>
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<tr>
<td><em>Prostate Cancer Side Effects and Psychosocial Distress in Patients</em></td>
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<td>Vincenzo Roma, Psychology (U)</td>
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<td>155 Poster #16 12:00-1:30 pm</td>
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<tr>
<td><em>The Correlations between Self-efficacy, Symptoms, Measures of Recovery, and Quality of Life in Severely Mentally III Older Adults</em></td>
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<td>Denisse Tiznado, Psychology (U)</td>
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<tr>
<td>156 Poster #17 12:00-1:30 pm</td>
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<tr>
<td><em>Portion Size Estimation Study</em></td>
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<tr>
<td>Kandel Beeson, Psychology (U)</td>
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<tr>
<td>157 Poster #18 12:00-1:30 pm</td>
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<tr>
<td><em>Stressed Out? Academic Organization Involvement and Social Comparison Anxiety among Undergraduate Students</em></td>
<td></td>
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<tr>
<td>Jason Dudley, Psychology (U)</td>
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<tr>
<td>158 Poster #19 12:00-1:30 pm</td>
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<tr>
<td><em>Nurse Leader Stress Study (NLSS)</em></td>
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<tr>
<td>Ian Smith, Business Management (U)</td>
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<tr>
<td>159 Poster #20 12:00-1:30 pm</td>
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<tr>
<td><em>Examining the Effect of Mental Illness Labels and Symptoms on Stigma through Emotional Reactions toward the Mentally III</em></td>
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<td>Jeffrey Treiber, Psychology (U)</td>
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| Poster #21 12:00-1:30 pm |
| *The Effects of Sense of Community on Obesity* |
| Laura Calcagno, Nursing (U) |

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<th>Session B-3</th>
<th>Poster: Psychology Health I</th>
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<tr>
<td>161 Poster #22 12:30-2:00 pm</td>
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<tr>
<td><em>High Body Mass Index Intensifies Hunger Rating in Older Adults</em></td>
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<tr>
<td>Delaney Downer, Psychology (U)</td>
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<tr>
<td>162 Poster #23 12:30-2:00 pm</td>
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<tr>
<td><em>Spatial Pattern Separation is Impaired in Nondemented Older Adults without Depression</em></td>
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<tr>
<td>Calhuei Hoebel, Psychology (U)</td>
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<tr>
<td>163 Poster #24 12:30-2:00 pm</td>
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<td><em>Relationships between Prospective Memory and Everyday Functioning in Parkinson’s Disease</em></td>
<td></td>
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<tr>
<td>Shea Gluhm, Psychology (U)</td>
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<tr>
<td>164 Poster #25 12:30-2:00 pm</td>
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<tr>
<td><em>Age and ApoeE status Effects on Olfactory Event-related Potentials</em></td>
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<tr>
<td>Krystin Corby, Psychology (M)</td>
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<tr>
<td>165 Poster #26 12:30-2:00 pm</td>
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<tr>
<td><em>Directed Attention in Children with Heavy Prenatal Alcohol Exposure</em></td>
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<tr>
<td>Jessica O’Brien, Psychology (M)</td>
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<tr>
<td>166 Poster #27 12:30-2:00 pm</td>
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<tr>
<td><em>Chemosensory Responding for Ethanol and Prototypic Sweet, Bitter and Oral Trigeminal Stimuli in Selectively Bred High Alcohol Drinking (HAD2), Low Alcohol Drinking (LAD2) and N/NIH Progenitor Rat Lines</em></td>
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<tr>
<td>Jeffrey Olney, Psychology (M)</td>
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<tr>
<td>167 Poster #28 12:30-2:00 pm</td>
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<tr>
<td><em>Expressivity through Musical Perception in Individuals with Williams Syndrome</em></td>
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<tr>
<td>Philip Lai, Language and Communicative Disorders (D)</td>
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<tr>
<td>168 Poster #29 12:30-2:00 pm</td>
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<tr>
<td><em>Effects of BMI on MRI Activation to a Pleasant Taste during Hedonic Evaluation in Older Adults</em></td>
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<tr>
<td>Erin Green, Clinical Psychology (D)</td>
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</tbody>
</table>
169 Poster #30 12:30-2:00 pm
Regulation of Sustained Isometric Force in Children with Heavy Prenatal Alcohol Exposure
Tanya Nguyen, Clinical Psychology (D)

Session B-4
Poster: Stem Cells and Neurobiology
Friday, March 5, 2010, 11:30 am – 2:00 pm
Location: Montezuma Hall South

170 Poster #31 11:30 am-1:00 pm
Stem Cell Based Treatment of Cartilage Defects
Nicholas Glombotski, Mechanical Engineering (U)

171 Poster #32 11:30 am-1:00 pm
Analysis of Leukemia Stem Cell Potential from Human Embryonic Stem Cell Derived Cells
Warren Plaisted, Biology (U)

172 Poster #33 11:30 am-1:00 pm
Use of Human Embryonic Stem Cells to Study Mechanisms of Mitochondrial Clearance in a Human Neuronal Model of Niemann Pick Type C
Chelsea Kidwell, Biology (U)

173 Poster #34 11:30 am-1:00 pm
Complementation of the Disrupted TRPC6 and VPRBP Genes in an Autistic Patient Using a Stem Cell Approach
Yanelli Nunez, Biology (U)

174 Poster #35 11:30 am-1:00 pm
Characterization of White Matter Architecture in Subjects with APOE2 and APOE4 Genotypes
Michael Valdez, Biology (U)

175 Poster #36 11:30 am-1:00 pm
Identification of Molecules that Regulate Neural Stem Cell Self-renewal, Differentiation, and Migration
Melissa Carrillo, Molecular biology (M)

176 Poster #37 11:30 am-1:00 pm
The Thingin Chili
Antonio Olea Jr., Biology (U)

177 Poster #38 11:30 am-1:00 pm
Deciphering the Gene Regulatory Network Controlling Peripheral Nervous System Development in the Invertebrate Chordate Ciona intestinalis
Weishene Tang, Cell & Molecular Biology (M)

178 Poster #39 11:30 am-1:00 pm
Roles for the ER Stress Response in Human Embryonic Stem Cell-Derived Cardiomyocytes
Christine Thornton, Cell and Molecular Biology (M)

179 Poster #40 11:30 am-1:00 pm
Induction of a Functional Antiviral Response and Selection for Attenuated Coxsackievirus B3 Variants inPersistently Infected Neural Progenitor and Stem Cell (NPSC) Cultures
Ginger Tsueng, Biology (D)

Session B-5
Poster: Child and Family Development
Friday, March 5, 2010, 11:30 am – 2:00 pm
Location: Montezuma Hall South

180 Poster #41 12:00-1:30 pm
The Effect of Mentoring on Child and Family Development 275 Students
Priscilla Mendez, Child and Family Development (U)

181 Poster #42 12:00-1:30 pm
A Look at Satisfaction with Music as a Kindergarten Readiness Tool
Bobbi Cannon, Child and Family Development (U)

182 Poster #43 12:00-1:30 pm
Scaffolding: A Means of Preparing Undergraduate Students to Cultivate Culturally Relevant and Developmentally Appropriate Preschool Curriculum through the Lens of San Diego State University’s 2009/2010 Common Experience
Whitney Baumann, Child and Family Development (U)

183 Poster #44 12:00-1:30 pm
Effects of a Mentorship Program on a Mentor
Stephanie Kitasoe, Child Development (U)

184 Poster #45 12:00-1:30 pm
Communication is Key
Shira Kern, Psychology (U)

185 Poster #46 12:00-1:30 pm
Adapting Twain: Tom & Huck & Jim
Kristen Nevarez, Theater Arts: General Studies (U)
### Session B-6
**Poster Presentation: Chemistry**  
**Friday, March 5, 2010, 11:30 am – 2:00 pm**  
**Location: Montezuma Hall South**

<table>
<thead>
<tr>
<th>Poster #</th>
<th>Date</th>
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<th>Authors</th>
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<tbody>
<tr>
<td>#186</td>
<td></td>
<td>12:30-2:00 pm</td>
<td><em>Diel Cycling Effects on Iron Uptake Pathways in Marinobacter Algicola and Impact on Mutualistic Phytoplankton</em></td>
<td>Ariel Romano, Chemistry (U)</td>
</tr>
<tr>
<td>#187</td>
<td></td>
<td>12:30-2:00 pm</td>
<td><em>Preliminary Studies on Optimized Nanoparticle Vaccines for Prostate Cancer</em></td>
<td>Andrea Rodriguez, Chemistry and Biochemistry (U)</td>
</tr>
<tr>
<td>#188</td>
<td></td>
<td>12:30-2:00 pm</td>
<td><em>Controlling Microfluidic Segmented Flow For Coaxial Injections</em></td>
<td>Devin Wakefield, Chemistry (U)</td>
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<tr>
<td>#189</td>
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<td>12:30-2:00 pm</td>
<td><em>Multi-Photon Laser Wave-Mixing Absorption Spectroscopy for Biomedical Applications</em></td>
<td>Ashley Warren, Chemistry (U)</td>
</tr>
<tr>
<td>#190</td>
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<td>12:30-2:00 pm</td>
<td><em>Design of Metal Organic Frameworks from Corroles</em></td>
<td>Daryl Hawkes, Chemistry (U)</td>
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<tr>
<td>#191</td>
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<td>12:30-2:00 pm</td>
<td><em>Sensitive Nonlinear Multi-Photon Laser-Based Detection of Trace-Concentration Analytes</em></td>
<td>Jorge Jimenez, Chemistry (U)</td>
</tr>
<tr>
<td>#192</td>
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<td>12:30-2:00 pm</td>
<td><em>Identification and Quantification of the Biosynthetic Genes of the Photoactive Siderophore, Vibrioferdin, in the North Atlantic and its Impact on Algal Iron Acquisition</em></td>
<td>Lyndsay Trimble, Chemistry (U)</td>
</tr>
<tr>
<td>#193</td>
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<td>12:30-2:00 pm</td>
<td><em>Mechanism of TBP Recruitment to the TATA-less U1 Promoter</em></td>
<td>Jinjoo Kang, Chemistry &amp; Biochemistry (M)</td>
</tr>
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<td>#194</td>
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<td>12:30-2:00 pm</td>
<td><em>Very Strong Redox-Dependent Hydrogen Bonding between a bis-Dimethylaminophenylurea and a Cyclic Diamide</em></td>
<td>Karina Kangas, Chemistry (U)</td>
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</tbody>
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### Session B-7
**Poster: Geosciences**  
**Friday, March 5, 2010, 11:30 am – 2:00 pm**  
**Location: Montezuma Hall South**

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<tr>
<td>#195</td>
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<td>12:30-2:00 pm</td>
<td><em>Characterization of Novel Proteins Involved in Binding to the Protein Shc</em></td>
<td>Spencer Swarts, Chemistry (M)</td>
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<tr>
<td>#196</td>
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<td>12:30-2:00 pm</td>
<td><em>Synthesis of Sansalvamide A Derivatives and Cytotoxicity in Cancer Cell Lines</em></td>
<td>Jenna Oelrich, Chemistry (U)</td>
</tr>
<tr>
<td>#197</td>
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<td>12:30-2:00 pm</td>
<td><em>Utilizing a “Chiron Approach” in the Total Synthesis of Azaspirane, A Powerful Inhibitor of Angiogenesis</em></td>
<td>Jerry Almazan, Chemistry (U)</td>
</tr>
</tbody>
</table>
Session B-9
Oral Presentation: Culture and Education
Friday, March 5, 2010, 1:00 pm
Location: Calmecac

205 1:00 pm
Race, Class, Demography and Educational Attainment: the Multi-Cultural Climate of San Diego High Schools
Mark Dawson, Sociology (U)

206 1:15 pm
Maania Rasooli, Political Science (U)

207 1:30 pm
Discrepancies between Implicit and Explicit Self-concepts: Examining their Relations to Academic Motivation and Performance
Jessica Winet, Psychology (U)

208 1:45 pm
Diverse Environments: Enough to Induce Implicit Multiculturalism?
Hafsa Mohamed, Psychology (U)

209 2:00 pm
Racial Profiles of Autism and Mental Retardation
Jennifer Inaba, Counseling and School Psychology (M)

Session B-10
Oral Presentation: Astronomy
Friday, March 5, 2010, 1:00 pm
Location: Casa Real

210 1:00 pm
Distances to Core-Collapse Supernovae using the Expanding Photosphere Method
Jesus Enriquez, Astronomy (M)

211 1:15 pm
The Effect of Starspots on Exoplanet Transit Observations
Shimonee Kadakia, Astronomy (M)

212 1:30 pm
New Observations and Neutron Star Mass for the X-ray Binary 4U 1538-52
Meredith Rawls, Astronomy (M)

213 1:45 pm
The Standardizability of Type Ia Supernovae in the Infrared
ShiAnne Kattner, Astronomy (M)

214 2:00 pm
Multiple Stellar Populations in NGC 6441
David Krogsrud, Astronomy (M)

Session B-11
Oral Presentation: Computer Science & Engineering
Friday, March 5, 2010, 1:00 pm
Location: Council Chambers

215 1:00 pm
Smarty: An Adaptive Computation Class Library for Realtime Interactive Simulations
Brigham Toskin, Computer Science (U)

216 1:15 pm
e-City Secure San Diego
Kunal Bhatia, Computer Science (M)

217 1:30 pm
A Cross Layer Optimization for QoS Enhancement in a Wireless Ad-hoc Network
Darshana Garach, Electrical Engineering (M)
218 1:45 pm

Fuzzy Logic Decision Making for an Intelligent Cooperative Multi-Robot Team that Maintains Security
Matthew Cross, Computer Science (M)

219 2:00 pm

Optimization of Limited Precision Computation for the Decoding of Low Density Parity Check (LDPC) Codes
Raymond Moberly, Mathematics (D)

220 2:15 pm

Simulating the Dynamics of Bose-Einstein Condensates using the Computational Capability of NVIDIA Graphics Cards
Ronald Caplan, Computational Science (D)

Session B-12
Oral Presentation: Computational Science and Biomedical Algorithms
Friday, March 5, 2010, 1:00 pm
Location: Chantico

221 1:00 pm

Real-Time Metagenomics
Daniel Cuevas, Computer Science (U)

222 1:15 pm

Mapping Regulatory Elements of Autophagy Genes
Lena Van der Stap, Computational Science (M)

223 1:30 pm

Identification of Macrolide Resistance Alleles in Environmental Metagenomes
Robert Schmieder, Computational Science (D)

224 1:45 pm

A Random Forest Model for Classifying HIV-1 Proteins
Gene Ko, Computational Science (D)

225 2:00 pm

Image Processing Techniques for Assessing Contractility in Isolated Adult and Neonatal Cardiac Myocytes
David Torres Barba, Computational Science (D)

226 2:15 pm

The Physiological Model of Cystic Fibrosis
Sara Zarei, Computational Science (D)

Session B-13
Oral Presentation: Communicative and Societal Issues
Friday, March 5, 2010, 1:00 pm
Location: Presidential Suite

227 1:00 pm

Communication as a Tool For the Coping and Healing Process: How People Cope With Romantic Break-Ups
Rebecca Mariotti, Communication (U)

228 1:15 pm

A Survey of Intercultural Biases: Stereotypes, Prejudice, Discrimination, Ethnocentrism and Racism
Kaeti Namba, Communication (M)

229 1:30 pm

Intercultural Friendship
Erdan Li, Communication (M)

230 1:45 pm

“But That's Not the Reality of Life Here”: A Proposal for an Ethnographic Study of Expatriate Humanitarian Aid Volunteers
Sarah Shoemaker, Communication (M)

231 2:00 pm

“Milk Does a Body Good?” A Rhetorical Analysis of Selected Got Milk Advertisements
Amanda Mizell, Communication (M)

445 2:15 am

Revolutionary Suicide: A Rhetorical Examination of Jim Jones' Death Tape
Margaret Pehanick, Communications (U)

#232-#236 See Session D-16

Session B-15
Oral Presentation: History
Friday, March 5, 2010, 1:00 pm
Location: Quetzalcoatl B

237 1:00 pm

The Suffering of Modern War in the Works of Otto Dix
Joseph Hammett, German (U)

238 1:15 pm

U.S.-Middle Eastern Foreign Policy Re-Formulated and the Development of Israeli Settlements
Adam Haight, History (M)
Session B-17
Oral Presentation: Biology and Ecology
Friday, March 5, 2010, 3:00 pm
Location: Calmecac

248 3:00 pm
Assessing the Function of California Ground Squirrel Displays toward Northern Pacific Rattlesnakes
Matthew Barbour, Ecology (M)

249 3:15 pm
Shape Analysis of the Mandibles of Odontocetes (Toothed Whales)
Celia Barroso, Biology (M)

250 3:30 pm
The Comparative Anatomy of Baleen and its Role in Mysticete Feeding Ecology
Samantha Young, Evolutionary Biology (M)

251 3:45 pm
Testing Phylogenetic and Phylogeographic Hypotheses in Acuclavella (Opiliones, Ischyropsalidoidea) from the Western Hemlock Zone of the Pacific Northwest
Casey Richart, Evolutionary Biology (M)

252 4:00 pm
Aliatypus thompsoni (Araneae, Antrodiaetidae) in the Transverse Ranges of Southern California: Comparative Phylogeography and Delimitation of Cryptic Species
Jordan Satler, Evolutionary Biology (M)

253 4:15 pm
Phylogenetic Relationships among the Alligator Lizards (Gerrhonotinae): A Multilocus Approach
Angela Marion, Evolutionary Biology (M)

254 4:30 pm
Abiotic Limitation of Invasive Plants in the High Salt Marsh Transition Zone
Kellie Uyeda, Biology (M)

Session B-18
Oral Presentation: Public Health
Friday, March 5, 2010, 3:00 pm
Location: Casa Real

255 3:00 pm
Use of Traditional Chinese Medicine by Chinese Americans in San Francisco
Chun Nok Lam, Public Health (M)
256 3:15 pm  
**Relationship Between Household Food Rules and Children’s Eating Behaviors**  
Christina Eisenberg, Public Health & Health Promotion (M)

257 3:30 pm  
**Evaluation of the TODAY Project (Transforming Obesity and Diabetes Awareness in Youth): the Impact of a School-based Prevention Program on the Behavior and Knowledge of 5th Grade Students**  
Felice Chavez, Public Health (M)

258 3:45 pm  
**Factors Associated with Staphylococcus aureus Colonization among HIV-infected Persons**  
Aladdin Shadyab, Public Health Epidemiology (M)

259 4:00 pm  
**A Pilot Study on Determinants for Knowledge about the Transmission of Rickettsial Disease and Factors Associated with Tick Sightings in the Colonia Lomas de San Ramon in San Quintin, Baja California: VIIDAI 23, Fall 2009**  
Saranette Sotomayor, Epidemiology (M)

260 4:15 pm  
**Knowledge, Attitudes and Practices Associated with H1N1 Influenza in Colonia Lomas de San Ramon, in San Quintin, Baja California Mexico. A Project of VIIDAI 23, Fall 2009**  
Justin Curole, Public Health (M)

261 4:30 pm  
**Teen Pregnancy in La Paz, Baja California Sur, Mexico**  
Trevor Stine, Latin American Studies (M)

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**Session B-19**  
Oral Presentation: Issues in Education  
Friday, March 5, 2010, 3:00 pm  
Location: Council Chambers

262 3:00 pm  
**Assessing a Mindfulness Course for Middle School Students**  
David Vafara, Social Work (M)

263 3:15 pm  
**Do Minorities Decrease Average Daily Attendance? A Quantile Regression Approach**  
Zadkiel Elder, Economics (M)

264 3:30 pm  
**Case Study: A Southern California Dual Language Program**  
Pilar Vargas, Curriculum (M)

265 3:45 pm  
**Effective Characteristics of a Dual Language Program A Need for Divergent Intervention for English Language Learners at La Escuela**  
Julia Parra, Policy Studies & Language & Cross Cultural Education (M)

266 4:00 pm  
**Service Project for Education Without Borders**  
Linda Sanchez, Applied Anthropology (M)

267 4:15 pm  
**Basic Skills and Global Competencies for Business Major Graduates: A Comparative Study of California Community Colleges’ and Employers’ Perspectives**  
Irina Weisblat, Educational Leadership: Community Colleges (D)

268 4:30 pm  
**Exploring the Implementation of Characteristics of Quality Service-Learning Programs in a Two-Year and a Four-Year Institution**  
Lauren Weiner, Educational Leadership: Community College/Postsecondary Education (D)

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**Session B-20**  
Oral Presentation: Literature  
Friday, March 5, 2010, 3:00 pm  
Location: Chantico

123 3:00 pm  
**“Touch by Touch, I Took Down his Gravehouse”: Decolonization and the Healing Touch in Louise Erdrich’s Love Medicine**  
Sophia Rivera, English (U)

270 3:15 pm  
**The Role of the Hemingway Hero in the Novels of Terry Pratchett**  
Steven Wood, English (U)

271 3:30 pm  
**Ideological Subversion in the Eighteenth-Century Novel: A Marxist Analysis Of The Concept Of Individuality in Evelina and The Female American**  
Kyle Baudour, English (U)
272 3:45 pm  
*Solutions Through Stories in Silko's Ceremony*  
Neal Fischer, English (M)

273 4:00 pm  
*Sexism, Racism, and Homophobia in Children's Literature (1970-1983)*  
Irina Chukhray, Women's Studies (M)

274 4:15 pm  
*Women Like Us: Resistance and Subversion in Caribbean Women's Literature*  
Ashley Greenwood, Women's Studies (M)

275 4:30 pm  
*Violence in Domestic Spaces*  
Shannon Brown, British Literature (M)

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**Session B-21**  
Oral Presentation: Environmental Issues  
Friday, March 5, 2010, 3:00 pm  
Location: Presidential Suite

276 3:00 pm  
*A Day in the Life of an Avocado*  
Efrain Galavic, Environmental and Sustainability Studies (U)

277 3:15 pm  
*Solar Water Security*  
Peter Noel, International Security and Conflict Resolution (U)

278 3:30 pm  
*Tawi-Tawi Water Purification Project*  
Travis Alexander, International Security and Conflict Resolution (U)

279 3:45 pm  
*Greenhouse Gas Emissions due to Idling Vehicles at the San Diego-Mexico Border Crossings*  
Suzanne Barzee, Environmental Health (M)

280 4:00 pm  
*A Modified Equal Per Capita Shares Approach To Climate Change Mitigation*  
Daniel Callies, Philosophy (M)

281 4:15 pm  
*Impact of Environmental Tobacco Smoke on Polycyclic Aromatic Hydrocarbons in Household Dust*  
Richard Hunt, Environmental Health (M)

282 4:30 pm  
*The Impact of Personal Health on Global Climate Change: an Example of the Scale-free Nature of Health*  
Nathan Daley, Public Health: Environmental Health (M)

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283 3:00 pm  
*Rendering of a Mulata: The Discovery and Rethinking of Mulatas in Spanish Colonial Art*  
Tashima Thomas, Art History (M)

284 3:15 pm  
*The Trial and Execution of the Cazonci Tzintzincha Tangaxoan: Cruel and Unusual Punishment?*  
Fernando Serrano Jr, Latin American Studies (M)

285 3:30 pm  
*Cortes's Conquest of Spain by Means of the Segunda Carta to Carlos V*  
Hernan Negrete, Spanish (M)

286 3:45 pm  
*Residual Orality in Cortés' Segunda Carta de Relación: How Rhetoric and Technology Converted a Mutineer into a 16th Century Luminary*  
Dexter Hough-Snee, Spanish (Latin American Literature) (M)

287 4:00 pm  
*What is all that Noise? Mike Patton and the Present of Italian Futurism*  
Lawrence Rizzuto, Musicology (M)

288 4:15 pm  
*Images of Power: Projections of Thoughts, Politics and Beliefs Through Art*  
Joel Mauel, Classics (U)

289 4:30 pm  
*Ricas y Famosas, the Camp-Fire: Fetishizing the Body, the Object and the Photograph*  
Lauren Ross, Art History (M)
Session B-23
Oral Presentation: Biosensors and Devices
Friday, March 5, 2010, 3:00 pm
Location: Quetzalcoatl B

290 3:00 pm  
*Sensor Development for a Robot: Autonomous Human Avoidance*  
Marcus Schaffer, Electrical Engineering (U)

291 3:15 pm  
*Automated Pneumatically Driven Violin Playing Robot and Using the Technologies in a Theatrical Setting*  
Eben Alguire, Theatre Arts (Lighting Design and Technical Direction) (M)

292 3:30 pm  
*Micro Particle Image Velocimetry (μPIV) Measurement of DNA Movement in an Electronically Active Microarray*  
Inna Bergal, Bioengineering (M)

293 3:45 pm  
*Investigation of Long-term Viability and Stability of DNA Wires in Carbon Electrode Based Bio-Nanoelectronics*  
Neha Chowdhry, Bioengineering (M)

294 4:00 pm  
*Novel 3-D All-Polymer High Collection Efficiency Pathogen Detection Biochip*  
Namratha Tata, Mechanical Engineering (M)

295 4:15 pm  
*Numerical Modeling of DNA Hybridization in Electronically Active Microarrays with Partial Match and Mismatch Kinetics*  
Neeraj Yadav, Mechanical (M)

296 4:30 pm  
*Influence of Coriolis Force on DNA Molecule Migration and Hybridization in Compact Disk (CD) Microfluidics Platforms*  
Nithesh Paramesh, Mechanical Engineering (M)

Session C-1
Poster: Psychology Health II
Friday, March 5, 2010, 3:00 – 5:30 pm
Location: Montezuma Hall South

297 Poster #1  3:00-4:30 pm  
*Prospective Memory in Individuals with Parkinson's Disease*  
Genevive Brusati, Psychology (U)

298 Poster #2  3:00-4:30 pm  
*Visual-Motor Deficits in Children with Histories of Heavy Prenatal Alcohol Exposure are Not Accounted for by More Basic Skills*  
Jillian Carrillo, Psychology (U)

299 Poster #3  3:00-4:30 pm  
*Behavior in Children with Early Focal Brain Damage*  
Monica Lopez, Psychology (U)

300 Poster #4  3:00-4:30 pm  
*Diffrences in Sensory Perception Assessment between Adolescents with ASD and their Caregivers*  
Francisco Velasquez, Psychology (U)

301 Poster #5  3:00-4:30 pm  
*The Role of an Odor Identification Task in Discriminating Depression from Probable Alzheimer's Disease in Older Adults*  
Emily Bower, Psychology (M)

302 Poster #6  3:00-4:30 pm  
*Age-Related Changes in Spatial Pattern Separation*  
Heather Holden, Psychology (M)

303 Poster #7  3:00-4:30 pm  
*Olfactory Assessment and Cultural Diversity: Implication for Assessment of AD*  
Yurika Enobi, Psychology (M)

304 Poster #8  3:00-4:30 pm  
*Redefining Compliance with Medical Recommendations for Students with High Cholesterol and Hypertension: The Relevance of Nutritional Habits and Exercise*  
Luz Garcini, Clinical Psychology (D)

305 Poster #9  3:00-4:30 pm  
*Neuroanatomical Correlates: Psychophysical Evaluation of Different Taste Qualities During Hunger and Satiety*  
Lori Haase, Clinical Psychology (D)
Further Validation of the Pleasant Events (PE) and Activity Restriction (AR) PEAR Model of Negative Outcomes in Alzheimer Caregivers: Associations with Markers of Sympathetic Tone
Elizabeth Chattillion, Clinical Psychology (D)

Detection of HIV-1 Sequences in the Human Genome
Matthew Hagen, Biology (U)

Investigating the Structural Dynamics Implication of Flexible Resilin Joints on Dragonfly Wings
Joseph Marrocco, Biology-Bioengineering (U)

Identifying, Isolating and Replicating Enzymes for Use in Biofuel Production
Samuel Ollar, Biology (U)

Engineering a Novel Protein Expression System Based on Vesicular Stomatitis Virus
Jimmy Guo, Cell Molecular Biology (M)

A Simplified rRNA in situ Detection of Microorganisms using Fluorescence and Electron Microscopy
Donn Van Deren, Jr., Cell Molecular Biology (M)

Sequencing the California Sea Lion Genome
Matt Doherty, Cell & Molecular Biology (M)

Immune System on a Chip: Fusing Stem Cells and Microfluidics
Trevor Gale, Microbiology (M)

Mitraal Valve Regurgitation in Patients Implanted with a Left Ventricular Assist Device (LVAD)
Bradford Fisher, Bioengineering (M)

Analysis of Mechanical Properties of Pulmonary Valve Leaflets
Soni Mikkilineni, Bioengineering (M)

Development of a Viscoelastic Model for Finite Element Simulations of Cyclically Loaded Human Bone
Richard Oka, Applied Mechanics/Biomechanics (D)

A Comparison of Trauma Rates and Effects in Male and Female Parolees
Jackeline Rodriguez, Criminal Justice (U)

Accessibility and Utilization at an Elementary School Based Health Clinic
Jayne Vermeulen, Nursing (U)

End of Life Communication among Mexican Americans and Korean Americans
Alejandra Lopez, Social Work (M)

Mexican-Americans’ Attitudes toward Life Sustaining Treatments
Monica Bonilla, Social Work (M)

Being Wo, or What are Thou?
Gabriela Guarguagli, Journalism & Media Studies (M)

A Comprehensive Literature Review of the Effectiveness of Sexual Assault Programming in Comparison to the Survivor’s and Non-survivor’s Perspective
Holly Nelson, Social Work (M)

Sociodemographics and Motivation as Predictors of Outcomes for Screening and Brief Intervention for Alcohol and Drug Use
Kimberly Eisenberg, Social Work (M)

Negative Social Reactions to Sexual Assault Disclosure and Discourse
Melissa Davis, Women’s Studies (M)
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<tr>
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<tr>
<td>Poster: Environmental Health and Ecology</td>
<td>Poster: Bilingualism, Language Processing, and Language Disorder</td>
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<td>Friday, March 5, 2010, 3:00 – 5:30 pm</td>
<td>Friday, March 5, 2010, 3:00 – 5:30 pm</td>
</tr>
<tr>
<td>Location: Montezuma Hall South</td>
<td>Location: Montezuma Hall South</td>
</tr>
<tr>
<td>324 Poster #29 3:00-4:30 pm</td>
<td>332 Poster #36 3:30-5:00 pm</td>
</tr>
<tr>
<td>Air Monitoring of Particulate Matter PM2.5 with Real-time Aerosol Monitors during Agricultural Burn Events in Imperial Valley, CA</td>
<td>Word Comprehension and Inhibition in Monolinguals and Bilinguals across the Lifespan</td>
</tr>
<tr>
<td>Christopher Carey, Public Health (M)</td>
<td>Daniela Cherbowsky, Speech, Language and Hearing Sciences (U)</td>
</tr>
<tr>
<td>326 Poster #30 3:00-4:30 pm</td>
<td>333 Poster #37 3:30-5:00 pm</td>
</tr>
<tr>
<td>Evaluation of Thirdhand Smoke Exposure to Polycyclic Aromatic Hydrocarbons through Indoor Contamination of Settled House Dust</td>
<td>Idiom Processing in Aphasia</td>
</tr>
<tr>
<td>Beth Wittry, Public Health (M)</td>
<td>Alexandria Triebsch, Speech Language and Hearing Sciences (U)</td>
</tr>
<tr>
<td>327 Poster #31 3:00-4:30 pm</td>
<td>334 Poster #38 3:30-5:00 pm</td>
</tr>
<tr>
<td>Methyl-t Butyl Ether Effects on Male Rat Reproductive Steroid Hormones and Aromatase mRNA</td>
<td>Aging Effects on the Real Time Processing of Idiomatic Phrases During Auditory Sentence Comprehension</td>
</tr>
<tr>
<td>Do Hyung Kim, Public Health (Toxicology concentration) (M)</td>
<td>Jonathan Brockman-Hawe, Speech, Language and Hearing Sciences (U)</td>
</tr>
<tr>
<td>328 Poster #32 3:00-4:30 pm</td>
<td>335 Poster #39 3:30-5:00 pm</td>
</tr>
<tr>
<td>Spatial Distribution of Traffic Related Air Pollutants in the Community of San Ysidro</td>
<td>Bilingual Adults’ Use of Cognates in Verbal Fluency Tasks</td>
</tr>
<tr>
<td>Lynelle Garnica, Environmental Health (M)</td>
<td>Anna Zak, Speech Language Pathology (M)</td>
</tr>
<tr>
<td>329 Poster #33 3:00-4:30 pm</td>
<td>336 Poster #40 3:30-5:00 pm</td>
</tr>
<tr>
<td>Participatory GIS in Accra, Ghana as a Tool to Neighborhood Definition and Differentiation</td>
<td>Parallel Language Activation in Bilinguals with High and Low Language Proficiency</td>
</tr>
<tr>
<td>Chung-Rui Lee, Geography (M)</td>
<td>Vanessa Howes, Speech-Language Pathology (M)</td>
</tr>
<tr>
<td>330 Poster #34 3:00-4:30 pm</td>
<td>337 Poster #41 3:30-5:00 pm</td>
</tr>
<tr>
<td>Persistent Organic Pollutant Content of Plastic Debris found on San Diego Beaches</td>
<td>Speech Movement Stability in Individuals with Cerebral Palsy</td>
</tr>
<tr>
<td>Almira Van, Public Health (M)</td>
<td>Adeena Homampour, Speech, Language and Hearing Sciences (M)</td>
</tr>
<tr>
<td>331 Poster #35 3:00-4:30 pm</td>
<td>338 Poster #42 4:00-5:30 pm</td>
</tr>
<tr>
<td>Acoustic Monitoring of Spatial and Thermal Habitat Use of East Pacific Green Turtles (Chelonia mydas) in San Diego Bay, CA, U.S.A.</td>
<td>Essential Writing Tasks for the Upper Division English Learning Student</td>
</tr>
<tr>
<td>Bradley MacDonald, Biology (M)</td>
<td>Xiomara Rivera, Linguistics (U)</td>
</tr>
</tbody>
</table>

Session C-6
Poster: Education
Friday, March 5, 2010, 3:00 – 5:30 pm
Location: Montezuma Hall South
Session C-7
Poster: Computer and Computational Sciences II
Friday, March 5, 2010, 3:00 – 5:30 pm
Location: Montezuma Hall South

344 Poster #48 3:00-4:30 pm
How Many Microbial Genes are there in the World?
Nicholas Celms, Computer Science (U)

345 Poster #49 3:00-4:30 pm
PhAnToMe
Brad Hull, Computer Science (M)

346 Poster #50 3:00-4:30 pm
Determining Phage Lifestyle Using Random Forests
Katelyn McNair, Computational Science (M)

347 Poster #51 3:00-4:30 pm
Distribution Frequency of PBP2a Encoding Methicillin Resistance in Metagenomes
Victor Segurian, Computational Science (D)

348 Poster #52 3:00-4:30 pm
Identifying the Frequency of Quinolone Resistance Genes in Environmental Samples
Sajia Akhter, Computational Science (D)

349 Poster #53 3:00-4:30 pm
Predicting Glaucoma Progression using Decision Trees for Clustered Data by Goodness of Split
Lucie Nguyen, Computational Statistics (D)

Session C-8
Poster: Engineering
Friday, March 5, 2010, 3:00 – 5:30 pm
Location: Montezuma Hall South

350 Poster #54 3:30-5:00 pm
Preliminary Erosion Bed Research: Three-Dimensional Scanning Analysis
David Flickinger, Construction Engineering (U)

351 Poster #55 3:30-5:00 pm
Biological Materials
Yen-Shan Lin, Mechanical Engineering (M)

352 Poster #56 3:30-5:00 pm
Study Of Three Window Designs for a Small Particle Solar Receiver
Onkar Mande, Mechanical Engineering (M)

353 Poster #57 3:30-5:00 pm
A Morphing Turbine Blade for Wind Energy Application
David MacPhee, Mechanical Engineering (D)

354 Poster #58 3:30-5:00 pm
Effect of Die Shape on SPS of Alumina
Evan Khaleghi, Mechanical Engineering (D)

355 Poster #59 3:30-5:00 pm
Uncertainty Quantification of Response Prediction for High Velocity Impact of Composite Laminates
Pablo Salas, Aerospace Engineering (D)

356 Poster #60 3:30-5:00 pm
Current Activated Tip-Based Sintering (CATS)
Ahmed El Desouky, Engineering Science/Applied Mechanics (D)

358 Poster #62 3:30-5:00 pm
Structures of Counter-flow Flames
Vaishali Amin, Engineering Sciences/Applied Mechanics (D)

450 Poster #63 3:30-5:00 pm
High-Order Resolution Eulerian–Lagangrian Simulations of Particle Dispersion in the Accelerated Flow behind a Moving Shock
Thomas Dittman, Aerospace Engineering (M)

451 Poster #64 3:30-5:00 pm
Evaluation of a Potential Flow Model for Propeller and Wind Turbine Design
Scott Palmiter, Aerospace Engineering (M)
Session D-1
Oral Presentation: Biochemistry
Saturday, March 5, 2010, 8:00 am
Location: Backdoor

359 8:00 am
Phosphate Dependency in Interfacial Metal Bridging of an Antibody and its Antigen
Maria Gutierrez, Chemistry and Biochemistry (U)

360 8:15 am
Coxsackievirus B3 Infection Induced Apoptosis in Neurogenic Regions of the Neonatal Central Nervous System
Chelsea Ruller, Cellular and Molecular Biology (M)

361 8:30 am
Biochemical Characterization of Phosphate binding Domain of STS-1 Protein
Jesal Patel, Biochemistry (M)

362 8:45 am
Identification and Functional Analysis of Neuronal Migration Genes in Planarians
Martis Cowles, Cell and Molecular Biology (M)

363 9:00 am
Elucidating the Roles of Hepatitis C Virus Alternative Reading Frame Proteins
Breeann Kirby, Molecular Biology (M)

364 9:15 am
Discovery of a Novel Mosquito Densovirus through Viral Metagenomic Screening
Yan Wei Lim, Cell and Molecular Biology (M)

365 9:30 am
Sansalvamide A and its Apoptotic Mechanism in Cancer Cell Lines
Katherine McKiernan, Biology (M)

Session D-2
Oral Presentation: Public Health
Saturday, March 5, 2010, 8:00 am
Location: Calmecac

366 8:00 am
An Eating Disorder Day Treatment Program Evaluation Using the EDI-3
Coral Waters, Social Work (M)

367 8:15 am
Validity of the Global Physical Activity Questionnaire (GPAQ) in Adult Latinas
Nancy Espinoza, Public Health/Health Behavior (D)

368 8:30 am
Combined Effects of Police Practices on the Drug-related Harms in Tijuana, Mexico
Tyson Volkmann, Global Health (D)

369 8:45 am
Ethnic Disparities in Smoking among Girls and Young Women in China
Sanghyuk Shin, Global Health (D)

370 9:00 am
Brief Intervention to Reduce Alcohol Use Among Men Who Have Sex with Men
Julie Croff, Public Health (D)

Session D-3
Oral Presentation: Literacy, Bilingualism, Language Processing and Disorders
Saturday, March 5, 2010, 8:00 am
Location: Council Chambers

372 8:00 am
Pennies, Piggy Banks, and Phonological Disorders: A Comparison of Progress Monitoring Techniques in Speech-Language Intervention
Laura Foster, Speech Language and Hearing Sciences (M)

373 8:15 am
Fast Mapping Abilities in Sequential Bilingual Children
Janie Lai, Speech, Language, and Hearing Sciences (M)

374 8:30 am
Exploring the Communication Patterns in Two Bilingual Dental Offices in Southern California
Robert Franks, Spanish (M)
<table>
<thead>
<tr>
<th>Session D-4</th>
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<tbody>
<tr>
<td><strong>Oral Presentation: Latino Identity and Community</strong></td>
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<tr>
<td><strong>Saturday, March 5, 2010, 8:00 am</strong></td>
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<tr>
<td><strong>Location: Casa Real</strong></td>
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<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>375</td>
<td>8:45 am</td>
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<tr>
<td>8:45 am</td>
<td><em>What Makes Reading so Difficult? Processing Orthographic and Semantic Information in the First to Fourth Grade</em></td>
<td>Lara Polse, Language and Communicative Disorders (D)</td>
</tr>
<tr>
<td>376</td>
<td>9:00 am</td>
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<tr>
<td>9:00 am</td>
<td><em>Bilingualism: Threat or Menace?</em></td>
<td>Darin Woolpert, Language and Communicative Disorders (D)</td>
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<tr>
<td>377</td>
<td>9:15 am</td>
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<tr>
<td>9:15 am</td>
<td><em>The Eyes Have It</em></td>
<td>Roberto Gutierrez, Language &amp; Communicative Disorders (D)</td>
</tr>
<tr>
<td>378</td>
<td>9:30 am</td>
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<tr>
<td>9:30 am</td>
<td><em>Effects of Semantics or Speaker Intent on Speech Motor Performance in Adults</em></td>
<td>Dorothy Yang, Language and Communicative Disorders (D)</td>
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<tr>
<th>Session D-5</th>
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<tbody>
<tr>
<td><strong>Oral Presentation: Social Psychology</strong></td>
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<tr>
<td><strong>Saturday, March 5, 2010, 8:00 am</strong></td>
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<td><strong>Location: Chantico</strong></td>
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<tr>
<th>Time</th>
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<tr>
<td>384</td>
<td>9:15 am</td>
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<tr>
<td>9:15 am</td>
<td><em>The 2009 Election in Chile: Why did Piñera Win?</em></td>
<td>Kenneth Bunker, Political Science (M)</td>
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<tr>
<th>Session D-6</th>
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<tbody>
<tr>
<td><strong>Oral Presentation: Physics</strong></td>
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<tr>
<td><strong>Saturday, March 5, 2010, 8:00 am</strong></td>
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<td><strong>Location: Presidential Suite</strong></td>
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<thead>
<tr>
<th>Time</th>
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<th>Presenter</th>
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<tbody>
<tr>
<td>388</td>
<td>8:45 am</td>
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<tr>
<td>8:45 am</td>
<td><em>Predicting Stock Success: Company Name Complexity, Processing Fluency, and Consumer Confidence</em></td>
<td>Carly Hennessy, Psychology (U)</td>
</tr>
<tr>
<td>389</td>
<td>9:00 am</td>
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<tr>
<td>9:00 am</td>
<td><em>Evaluating Prescriptions for Optimism: Ideal Predictions are Often (but not Always) Optimistic</em></td>
<td>Sara Andrews, Psychology (M)</td>
</tr>
<tr>
<td>390</td>
<td>9:15 am</td>
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<tr>
<td>9:15 am</td>
<td><em>The Conceptual Structure of Psychological Closeness to Nature</em></td>
<td>Wallis Levin, Psychology (M)</td>
</tr>
</tbody>
</table>

**Student Level: (U)=Undergraduate; (M)=Masters; (D)=Doctoral**
392 8:15 am
*Generating Optical Vortices Using a Femtosecond Laser and Spatial Light Modulator*
Antonio Talamantes, Physics (U)

394 8:30 am
*A Three Dimensional Concurrent Solver for the Schrodinger Equation*
Brendan Fahy, Computational Science (M)

395 8:45 am
*Thermal and Electrical Properties of Ruthenates*
Nichelle Worthington, Physics (M)

396 9:00 am
*Optical Excitations in Positronic Atoms*
Lucas Cota, Physics (M)

397 9:15 am
*On the Long-range Molecular Interactions between Two Atoms*
Julia Rossi, Physics (M)

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Session D-7
Oral Presentation: Health and Fitness
Saturday, March 5, 2010, 8:00 am
Location: Quetzalcoatl A

398 8:00 am
*The Importance of Communication in Patient Care*
Kai Mercado, Communication (U)

399 8:15 am
*Individual and Family Level Influences on Pre-adolescent Latinas' Physical Activity*
Sarah Fredrickson, Public Health (U)

400 8:30 am
*The Effects of Sleep Deprivation on Emotional Intelligence and Moral Judgment*
Tracey Slonim, Psychology (U)

401 8:45 am
*Sex and Happiness among Brazilian Migrants in Metropolitan Boston*
Melissa Gern, Nursing (U)

402 9:00 am
*Religious Behavior and Happiness among Brazilian Migrants in Metropolitan Boston*
Fatima Adel, Biology (U)

403 9:15 am
*The Influence of Household Environment and Social Capital on Sleep Quality among Immigrant Adults in Metropolitan Boston*
Kaitlyn Hill, Chemistry (U)

404 9:30 am
*Neighborhood Environment, Proximity to Medical Care, and the Self-reported Health of Brazilian Immigrants*
William Bredemeyer, Geography (M)

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Session D-8
Oral Presentation: Computational Sciences
Saturday, March 5, 2010, 8:00 am
Location: Quetzalcoatl B

405 8:00 am
*Experimental and Theoretical Modeling of Mitochondrial Inner Membrane Conformation: Electron Microscope Tomography and Thermodynamics*
Mariam Ghochani, Computational Sciences/Physics (M)

406 8:15 am
*General Curvilinear Ocean Model: Next Generation*
Mohammad Abouali, Computational Sciences (D)

407 8:30 am
*Mimetic Divergence, Gradient, and Boundary Operators over Non-uniform, Two-dimensional Meshes*
Elbano Batista, Computational Sciences (D)

408 8:45 am
*Hopping Behavior and Effects of Noise in Cellular Pattern-Forming Systems*
Joan Martinez, Computational Science (D)

409 9:00 am
*Modeling of Urban Canopy with Complex Land Surface by Using Immersed Boundary Method in Large Eddy Simulation*
Long Sun, Mechanical engineering (D)

410 9:15 am
*Nonlinear Sliding Surfaces; Computing and Existence of Solution*
Azad Ghaffari, Control And System (D)
### Session D-16
**Oral Presentation: Communication Devices and Antennas I**  
Saturday, March 5, 2010, 8:00 am  
Location: Montezuma Hall

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation Title</th>
<th>Speaker</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 am</td>
<td>Investigations on Ground Plane Reconfiguration based Frequency Agile Microstrip Bandpass Filter with Defected Ground Structures (DGS)</td>
<td>Rahul Bakshi</td>
<td>Electrical Engineering (M)</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Investigations on the Design of a Wideband Microstrip Bandpass Filter with Defected Ground Structures (DGS)</td>
<td>Pankaj Dagar</td>
<td>Electrical and Computer Engineering (M)</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Investigations on Co-planar Waveguide Fed Pentagon Shaped Planar Monopole Ultra-Wide Bandwidth Antenna Providing Invariant Radiation Patterns</td>
<td>Robert Moody</td>
<td>Electrical Engineering (M)</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Investigations on Novel Reconfigurable Aperture Antennas Employing Multimode Radiating Elements and Metamaterial Structures</td>
<td>Nathan Labadie</td>
<td>Electrical Engineering (D)</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Novel Designs for Electrically Small Antennas (ESA)</td>
<td>Alberto Rodriguez</td>
<td>Electrical Engineering (D)</td>
</tr>
</tbody>
</table>

### Session D-9
**Oral Presentation: Biology**  
Saturday, March 5, 2010, 10:15 am  
Location: Backdoor

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation Title</th>
<th>Speaker</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15 am</td>
<td>iCRE-CVB3: A Molecular Reporter Virus to Identify Sites of Persistent Coxsackievirus Infection</td>
<td>Ross Rhoades</td>
<td>Molecular Biology (D)</td>
</tr>
</tbody>
</table>

### Session D-10
**Oral Presentation: Women’s Studies**  
Saturday, March 5, 2010, 10:15 am  
Location: Calmecac

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation Title</th>
<th>Speaker</th>
<th>Department</th>
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</thead>
<tbody>
<tr>
<td>10:15 am</td>
<td>Body Image After Breast Cancer: What Female Undergraduates Anticipate</td>
<td>Aruna Patel</td>
<td>Psychology (U)</td>
</tr>
<tr>
<td>10:30 am</td>
<td>Body Modification and Femininity</td>
<td>Yelena Bespalko</td>
<td>Psychology (U)</td>
</tr>
<tr>
<td>10:45 am</td>
<td>Let’s Go Home</td>
<td>Jenny Woudenberg</td>
<td>Women’s Studies (U)</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Sexualized Violence and Economic Exploitation: Rape as a Strategic Weapon of War in the Democratic Republic of the Congo</td>
<td>Moriah Meeks</td>
<td>Women’s Studies (M)</td>
</tr>
<tr>
<td>11:15 am</td>
<td>Feminist Zine Making as a Tool for the Production of Feminist Knowledge, the Dissemination of Feminist Knowledge, and the Creation of a Transnational Feminist Community</td>
<td>Jessica Spain</td>
<td>Women’s Studies (M)</td>
</tr>
<tr>
<td>Session D-11</td>
<td>Oral Presentation: Relationship Violence</td>
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<td>Saturday, March 5, 2010, 10:15 am</td>
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<td>Location: Casa Real</td>
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<td>421</td>
<td>10:15 am</td>
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</tbody>
</table>
|             | *Predictors of Physical and Emotional Dating Abuse in Female Perpetrators*  
|             | Vanessa Watts, Psychology (M)           |
| 422         | 10:30 am                                |
|             | *The Moderating Effect of Perceived Positive Peer Norms on the Relationship between Gender, Acceptance of Violence, and Perpetration of Teen Relationship Violence*  
|             | Brenton Stewart, Developmental Psychology (M) |
| 423         | 10:45 am                                |
|             | *The Volunteer Probation Officer System/Program of Japan and the United States of America: A Comparative Study*  
|             | Anthony Aguon, Criminal Justice & Criminology (M) |
| 424         | 11:00 am                                |
|             | *Associations between Weapon-Carrying Behavior and Adolescent Suicidalty*  
|             | Lauren Joe, Public Health, Epidemiology (M) |
| 425         | 11:15 am                                |
|             | *Anger Control: A Mediator between Parental Conflict and Relationship Violence*  
|             | McKenzie Lewis, Psychology (M)          |
| Session D-12| Oral Presentation: Literature II        |
|             | Saturday, March 5, 2010, 10:15 am       |
|             | Location: Council Chambers              |
| 426         | 10:15 am                                |
|             | *Love to Hate It: The Anti-Fandom of Twilight*  
|             | Jacqueline Pinkowitz, TFM Critical Studies; English (U) |
| 427         | 10:30 am                                |
|             | *Amending Masks and Secret Identities: The Journey of Asian American Superheroes and Portrayals*  
|             | Jonathan Valdez, Asian Studies (U)      |
| 428         | 10:45 am                                |
|             | *Changes Tupac Shakur: Then and Now*     
|             | Maya Ginsberg, Musicology (M)           |
| 429         | 11:00 am                                |
|             | *Grandma Knows Best*                     
|             | Bernie Toledo, Single Subject Teaching: English (U) |
| 430         | 11:15 am                                |
|             | *The Beatles' Sgt. Pepper’s Lonely Hearts Club Band as a Concept Album: An Analysis of Instrumentation, Compositional Techniques, Narrative, and Lyrics*  
|             | Alexandra Tea, Music (M)                |
| 431         | 11:30 am                                |
|             | *Inside or Outside of Oz: Placing Baum's The Woggle-Bug Book within the Oz Series*  
|             | Rebecca Hershberger, American Literature (M) |
| 432         | 11:45 am                                |
|             | *Beauty, Memory and Trauma in Cormac McCarthy’s The Road*  
|             | Pierre Lalague, English (M)             |

<table>
<thead>
<tr>
<th>Session D-13</th>
<th>Oral Presentation: Renewable Energy</th>
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<td>Saturday, March 5, 2010, 10:15 am</td>
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<td>Location: Presidential Suite</td>
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<td>433</td>
<td>10:15 am</td>
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</table>
|             | *A Comparison of Accuracy between Point Cloud Data from a Terrestrial Laser Scanner and Past Surface Area Calculation Methods at Green Waste Facilities*  
|             | Adam Frandson, Civil Engineering (U) |
| 434         | 10:30 am                            |
|             | *Simulation of Shadow Effect on 3D Organic Photovoltaic Cell*  
|             | Mihir Parikh, Mechanical Engineering (M) |
| 435         | 10:45 am                            |
|             | *Device Physics for New Generation of 3D Organic Photovoltaic Cells*  
|             | Anurag Kaushik, Electrical Engineering (M) |
| 436         | 11:00 am                            |
|             | *Thermodynamic Cycles for Small Particle Heat Exchange Receivers Used in Concentrating Solar Power Plants*  
|             | Kyle Kitzmiller, Mechanical Engineering (M) |
| 437         | 11:15 am                            |
|             | *Radiation Heat Transfer Simulation of a Small Particle Solar Receiver using the Monte Carlo Method*  
|             | Steven Ruther, Mechanical Engineering (M) |
438 11:30 am
*Effect of Sampling Period on Flood Frequency Distributions*
Maryam Kargar, Civil Engineering (M)

439 11:45 am
*Impact of Time of Concentration Variability on the Uncertainty of Simulated Flood Discharges*
Courtney Wilson, Civil Engineering (M)

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**Session D-14**

**Oral Presentation: Geography**

Saturday, March 5, 2010, 10:15 am
Location: Quetzalcoatl A

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440 10:15 am
*Forest Fire Severity Mapping using Satellite Imagery and GIS for Dellach, Austria*
Nicole Simons, Geography (D)

441 10:30 am
*Smart Cookies: Gendered Performances of Capitalism in the Girl Scout Cookie Program*
Denise Goerisch, Geography (D)

442 10:45 am
*Analyzing Human-Computer Interaction in Online Transportation Planning: Towards a User-centered Design of Participatory Tools*
Martin Swobodzinski, Geography (D)

443 11:00 am
*The Geography of Day Labor in the San Diego Metropolitan Area*
Sean Crotty, Geography (D)

444 11:15 am
*Exploring the Spatial Resolution Limitations of Satellite Imagery for Slum Detection in Accra, Ghana*
Justin Stoler, Geography (D)

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**Session D-15**

**Oral Presentation: Philosophy**

Saturday, March 5, 2010, 10:15 am
Location: Quetzalcoatl B

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445 See Session B-13

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446 10:15 am
*Burge, Marty, and Fallibility*
Jonathan Hecht, Philosophy (U)

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447 10:30 am
*On the Semantics of Singular Statements in Aristotle*
Kevin Lopez, Philosophy (M)

448 10:45 am
*Computers Can Know Chinese*
Mark Norzagaray, Philosophy (M)

449 11:00 am
*Aristotle’s Pathe: Full Understanding and Virtuous Behavior*
Marisa Diaz-Waian, Philosophy (M)

450 See Session C-8
451 See Session C-8

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**Session D-16: see page 34**

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**Session D-17**

**Oral Presentation: Communication Devices and Antennas II**

Saturday, March 5, 2010, 10:15 am
Location: Chantico

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68 10:15 am
*Investigations of a Four Pole Dielectric Resonator Filter and Circularly-Polarized Dielectric Resonator Antenna for Ku-band Satellite Communications Applications*
Joshua Patin, Electrical Engineering (M)

69 10:30 am
*Investigations on a Triple (TE_{11}, TM_{01}, TE_{21}) Mode Feedhorn Capable of Providing Scanned Radiation Patterns*
Ashish Tuteja, Electrical Engineering (M)

70 10:45 am
*Improving Radiation Pattern Performance of y-shape Microstrip Patch Antennas by Employing Dielectric Sheet with Metallic Strips*
Shiv Varanasi, Electrical Engineering (M)

71 11:00 am
*Design of Frequency Reconfigurable Compact Multiband Quasi-Log Periodic Dipole Array (QLPDA Antenna for Wireless Communications)*
David West, Electrical Engineering (M)
Sessions: Friday, March 5

Session A-1
Poster: Psychology I
Friday, March 5, 2010, 8:00 am – 10:30 am
Location: Montezuma Hall South

#1  8:00–9:30
Hybrid Views on Origin of Species and Implications for Cognitive Processing
Allison Rosales, Psychology (U)
Sara Unsworth, Psychology

Previous research has shown that people often possess hybrid theories of evolution and creationism and that these hybrid views often involve conflicting ideas (e.g., 2004 Poling and Evans). The present study is the first attempt to examine the cognitive implications of these hybrid views. Participants were asked to rate the extent to which they thought evolution or creationism are true, and they were also asked to sort 25 words (e.g., truth, myth, Darwin, Bible) according to whether they were related to creationism only, evolution only, both creationism and evolution, or neither creationism nor evolution. In order to examine differences in cognitive processing, participants were given a number recall task during their sorting task. At the beginning of the sorting task, participants were asked to memorize a set of numbers, and after one minute the participants were asked to recall their numbers. It was hypothesized that participants who possess a hybrid view of creationism and evolution would not be able to recall their numbers as well as those who endorse only creationist or evolutionist views because they may require more cognitive resources to manage competing concepts. The results supported this hypothesis. Implications for science education are discussed.

#2  8:00–9:30
Rosemary Meza, Psychology (U)
Judy Reilly, Psychology

During face-to-face interaction, the face and the body are crucial communicative tools in conveying emotional information. Developmentally, by their first birthday, infants use facial expression to convey their internal states; these displays are reliably identified by their caregivers suggesting that spontaneous emotion develops early in life. In addition, adults, who are influenced by cultural display rules, can voluntarily control their emotional expressions. Yet, little is known about the development of spontaneous and voluntary control of expression although recent studies on perception suggest that emotion-processing skills continue to develop into late school age (e.g., Vicari et al 2000). To better understand the development and use of children’s production of facial expressions, we examined spontaneous, posed and mimicked facial expressions in 30 children (ages 3 to 8 years). Children took part in four tasks: 1) biographical interview 2) three naturally emotion-eliciting tasks 3) posed facial expression task in which children listened to stories and were asked to show how the character would feel and 4) mimicked facial expression task in which they mimicked facial expressions from still photos. Facial expressions were coded using both Ekman & Friesen’s Facial Action Coding System (FACS), as well as a computer automated facial expression recognition program (CERT). Language data were transcribed using CHAT from the Child Language Data Exchange System (CHILDES). Results showed that: 1) children’s production of facial expressions are non-canonical and only partial; 2) In the spontaneous, posed, and mimicked tasks there were no differences in production across age groups; 3) However, there was enormous individual variability in performance across age and emotion; 4) With respect to use of facial expressions, the older children are more likely to mask negative affect than the younger children. In spite of children not producing canonical facial expressions, they successfully convey emotions by compensatory means. Also, Children’s partial performance on both spontaneous and voluntary tasks suggests a less stringent coding system may be more appropriate for coding children’s facial expression. Results from this study are of value for intervention programs for children with emotional and social cognitive deficits, such as those with Autism or Attention Deficit Disorder.

#3  8:00–9:30
The Effects of Childhood Responsibility on Later Development
Stephanie Van Stralen, Psychology (U)
Barbara McDonald, Psychology

Many families teach their children useful skills and give them a taste of adult responsibility by having them participate in family tasks. In some families, children actually take on adult roles and responsibilities in order to help their parents. This study investigated the amount of responsibility individuals had growing up and how this affected their perceptions of their childhood. A survey was given to 69 undergraduate students at San Diego State University. The U.S. Census Bureau states that in 2008, most children lived with at least one sibling (79 percent). The majority (64 percent) lived with one or two siblings, while 5 percent lived with four or more siblings (2008). Our participants had an average of 2 siblings and almost 25% indicated that they felt stressed as children. A strong pattern of results emerged, showing that the more responsibility participants reported having as children, the less satisfied they were with their upbringing. They indicated...
some understanding of the reason for this level of responsibility: the more responsibility they had, the more they reported thinking their parents were stressed. Participants who said they helped raise their siblings reported feeling they had too much work to do as children. These individuals strongly agreed with the statement “if I needed something as a child, I had to figure it out on my own.” There were ten participants in our study who had a sibling with a disability. These participants did not report higher levels of household responsibility than did other participants. Perhaps these families found ways to help their children take on responsibility without feeling too burdened, as has been suggested by several researchers (Dyson, 1993; Waggoner & Wilgosh, 1990). Overall, this retrospective study helped us to better understand the outcomes of sibling responsibility in adult life.

#4 8:00–9:30
Language and Family: The Foundation of Communication
Sarah Garcia, Psychology (U)
Barbara McDonald, Psychology

Differences in communication styles and uses of language are used in creating and maintaining class identities within society. These distinctions based in language use and comprehension have been equated with intellectual ability, providing a basis for organizing people by their perceived intellectual capacity. The present research explored these perceived notions of language as a predictor of cognitive ability and investigated the development of individual relationships to language. In a qualitative study, seven college students representing a wide range of life experiences were interviewed using a semi-structured format. Questions concerned language use in their families, content and frequency of communication, comfort with the language used in their college courses and views of their personal relationships to language and communication. In addition, the interviewees completed a simple language assessment providing a standardized rating of their language capacity. Each student received a score based on their demonstration of familiarity with a range of academic vocabulary words. The language assessment scores were closely related to their self-reported understanding of and comfort with language. The students whose parents attended college demonstrated greater comfort and familiarity with academic language as opposed to those whose parents were not exposed to higher education. This greater level of familiarity with language was also reflected in their higher assessment scores. These individuals’ stories show the importance of the role that family and immediate community play in an individual’s development of language use and understanding. However, these conversations reveal that simply having early exposure to the academic language and culture does not prepare an individual for the need to think critically and creatively. Some of the individuals interviewed did not come from an academic household however they expressed great interest in exploring and expanding on their learning and generating ideas. Additionally, there was an individual who was familiar with academic language and discourse but lacked the interest in exploring alternative perspectives and attempting greater problem solving. The search for deeper understanding, connection to ideas and introspection are not abilities exclusive to those who are familiar with academic language nor are they automatically acquired in such an environment.

#5 8:00–9:30
Spending Time with the Children?: An Experimental Study of the Commuter Family
Jessica Mendel, Psychology (U)
Shulamit Riblatt, Child and Family Development

Spending time with family is a pastime that most children look forward to, but for the commuting families, this time can be cut short. Although children of a dual-career family tend to rate their family structure as a positive one, they also tend to note that some problem areas with this structure are the time constraints they have to work around (Knaub, 1986). The present study addresses the role the children play in this commuting family structure, and how much time they spend with their family, in comparison to children in non-commuting families. For the purpose of this study, a commuter family is defined as a couple where one partner exits and re-enters the family structure at least ten times per year, or at least one month per year for work. Silver (2000) found that the largest impact on time spent with their children, was actually the child’s age; and the activities spent with the children usually include some form of household work (Silver, 2000). Participants completed a pencil-and-paper survey that was also available online, about their family structure and indicated how much time they spent with their children doing different activities. We predicted that the commuting families would spend less time doing activities with their children then those in a non-commuting family. Of these participants, 86 commuter spouses and 54 non-commuting couples reported the amount of time they spent doing different fun activities with their children when they were home. According to the present research, commuting parents spend less time doing activities such as going to the movies, watching TV, going out to dinner, doing outdoor activities, etc., with their children, then those parents who do not commute. Further research could look at why this is the case, and come up with reasons for why the commuting families have a harder time spending time with their family when home, other then the obvious reasons of living a busy life style.
#6 8:00–9:30

**The Effect of Communication in a Family during Marriage vs. Divorce**

Michael Garrett, Psychology (U)
Barbara McDonald, Psychology

Prior research by Matters states that children who were told why their parents were going through divorce and who were involved in making decisions with their parents coped better with divorce and had better behavior than children who did not receive an explanation. Students in a psychology class were given one of two surveys depending if their parents were divorced or still married. There were 37 students whose parents were still married and they answered questions about the quality of their parents’ marriages as well as questions about the emotional climate of the household. There were 25 students whose parents had divorced and they answered questions about their feelings about the divorce and how it affected their childhood and the choices they would make about their own marriage. In both samples, males were underrepresented with fewer than five in each group. Those participants who reported having someone to talk about regarding their parents’ divorce felt that they had good behavior, reported being less angry about the divorce and had a more positive view about their own relationships and having a family in the future. Participants who felt they were considered during the decision making of their parents’ divorce felt that they would become better parents. In addition, for students whose parents were still married 70% reported thinking their parents marriages were successful. Here again, the importance of family communication was key to attitudes about family decisions and the feeling that parents handled conflict well. The data show that family communication plays a role in how children view their lives and their futures. The better communication and more attention participants got as children, the better attitudes they had.

#7 8:00–9:30

**Loneliness, Time Use, and Experienced Affect in Older Adults**

Lisa Damron, Interdisciplinary Studies (U)
Colin Depp,

Loneliness is a risk factor for poor health and cognitive decline among older adults. It is unclear to what extent the negative effects of loneliness are due to diminished social engagement or to emotional factors. We examined time use and affective experiencing among lonely vs. not lonely people using a modified version of the Day Reconstruction Method (DRM). The DRM is a survey method that is a hybrid of Ecological Momentary Assessment (EMA) and daily diary methods, and asks about the social context, affective experiences, and time use over a single day. In a sample of 76 community-dwelling adults 60 years and older, we dichotomized participants based on responses to a single-item question into lonely (sometimes or frequently) vs. not lonely (never or infrequently). We then assessed the proposition of time spent alone, time use, and affect ratings for events throughout the day (e.g., happy, interested, sad). The mean age of the 76 person sample was 75.2 (sd=9). Overall, 32% were lonely sometimes or frequently. Surprisingly, the group that endorsed loneliness spent marginally less time alone than the group that reported never feeling lonely (37% vs. 43%, respectively) and the distribution of activities did not differ across groups. However, on affective experience, the group that endorsed loneliness has significantly lower ratings of “interested” collapsed across activities. In light of the small sample size, our diary-based study suggests that loneliness may have more to do with emotional responses to daily events than to time spent alone or distribution of activities.

#8 8:00–9:30

**The Irony of Harmony Revisited: Intergroup Contact, Inequality, and Action**

Bradley Weisz, Psychology (U)
Jeff Bryson, Psychology

Positive intergroup contact has long been considered one of the most effective strategies for improving intergroup relations. However, in a recent study Saguy, Tausch, Dovidio, & Pratt (2009) demonstrated that such positive contact can have an ironic effect: minority group members who have experienced positive contact with majority group members are less likely to question inequalities and less likely to endorse collective action as a means of achieving equality. Participants in Saguy et al. (2009) were Arabs living within the state of Israel, a situation in which inequalities are severe and intergroup conflict is often quite hostile. We sought to re-examine Saguy’s analysis in a cultural setting where intergroup attitudes and conflicts are less harsh – relationships between Anglos and Latinos in southern California. A modified version of Saguy’s questionnaire was administered to 119 college students who had identified themselves as Latino/Hispanic or as Mexican-American/Chicano, asking about their relationships with and attitudes concerning interactions with Anglos. Consistent with Saguy et al., we found that contact predicts reduced endorsement of collective action. However, the process that explains this, using path analysis, is quite different. In the present setting intergroup contact does not reduce awareness of inequalities; rather, it leads to improved attitudes and reduced anger concerning inequality, which reduce collective action. Positive intergroup contact more directly affects belief in the efficacy of individual actions as a way of reducing the effects of inequality at the individual level. It is important to note that such individual benefits, however, may serve to maintain the status quo rather than altering perceptions of the larger group.
Alternately, it may be that there is a tipping point in the quality of intergroup relations that determines one’s belief in the relative efficacy of individual vs collective action in confronting inequality.

**#9 8:00–9:30**

**Decontextualized Language in Preschool Narratives**
Anna Fitzhugh, Psychology (M)
Judy Reilly, Psychology

Language has been described as a continuum from oral to written language. Oral language tends to be informal, contextualized, and used as a regulatory social tool. Written language, however, is presented out of context, is often more sophisticated, and requires the use of specific linguistic devices to convey meaning. During narration, one must present a story in its own context outside of the immediate, present context, a concept called decontextualization. In fact, decontextualized language first appears in the language of preschoolers’ play and narrative interactions. Four indices of decontextualized language, or literate language features, are: 1) elaborated noun phrases (e.g., the big blue balloon), 2) conjunctions (e.g., and, or, but, because), 3) adverbs (e.g., quickly, happily, extremely), and 4) mental and speech verbs (thought, knew, said, called). Each of these devices allows the narrator to describe characters and objects, causal and temporal relationships, event details, and to ascribe mental states to characters, respectively. Studies have shown that decontextualized language is related to literacy acquisition during the early school years. The present study investigates decontextualized language skills in preschool narratives looking at literate language feature usage during narration. Oral narratives were collected from 54 preschool children (ages 3 years 0 months to 5 years 11 months) from monolingual English speaking families. Narratives were transcribed in CHILDES format and analyzed for use of literate language features. In general, decontextualized language skill increases with age. Elaborated noun phrases and conjunctions occurred most commonly in the preschool period. The present study maps the developmental trajectory of decontextualized language skills during early childhood.

**#10 8:00–9:30**

**Behavioral Indices of Grappling**
Linda Phan, Psychology (M)
Judy Reilly, Psychology

When struggling to solve a problem, we often grapple to formulate an answer. Studies of adults suggest that during cognitively demanding tasks, adults avert their eye gaze (from faces or the environment) to concentrate on the task (Glenberg et al., 1998). While there are studies on the development of gaze aversion in children and adults during a problem solving context, few studies have addressed the development of eye gaze patterns in a more extended dyadic interaction (for example, the social situation between student and teacher during the learning process). In an educational context, to be effective, teachers must be able to recognize when a student is grappling with a problem. The present study characterizes the development of eye gaze patterns in preschool and school-aged children (N = 30; ages 3–4 yrs, and 7–8 yrs) and adults (N = 12, ages 19–35 yrs) during dyadic interactions requiring varying levels of cognitive effort. Participants took part in two tasks: 1) Biographical interview in which participants were asked questions pertaining to themselves; questions varied in levels of difficulty and 2) Mystery Object task in which participants were given objects to identify using only haptic input. Results suggest that during dyadic interactions that require low cognitive effort, there are no significant differences in eye gaze patterns between age groups. However, during dyadic interactions that require more cognitive effort, only the older children show similar gaze patterns to adults. This suggests that the older group has acquired the adult eye gaze patterns, but that the younger group is not using gaze in the same manner. Results from this study will have important educational implications, such as helping teachers learn to be sensitive to children’s communicative behaviors outside language, and in designing interventions for children with communicative disorders.

**Session A-2**

**Poster: Cognitive and Social Sciences I**
**Friday, March 5, 2010, 8:00 am – 10:30 am**
**Location: Montezuma Hall South**

**#11 8:30–10:00**

**Effectiveness of a Skin Cancer Education Video on the Deaf**
Kadie Harry, Psychology (U)
Vanessa Malcarne, Psychology

One million Americans are diagnosed with skin cancer each year. Skin cancer affects everyone and can have very serious consequences. Thus, various public education efforts have been undertaken to educate the public about the dangers of skin cancer and how to reduce risk. Unfortunately, the Deaf and Hard-of-Hearing community is under-served in terms of the media and health care access that they receive; therefore, it is imperative to develop tailored and effective educational interventions designed to increase their knowledge of skin cancer. Participants (N = 130) were randomly assigned to view either a skin cancer education video or a palliative webcast on Patient and Family Support. The 60-minute educational video, filmed in American Sign Language showed a guest lecturer providing answers to four audience members’ questions. The focus of this study was on the Deaf
community, but the addition of open text captioning and voice overlay enabled the video to be accessed by both Deaf and Hard-of-Hearing individuals, as well as their hearing friends and family. Although the skin cancer video had previously received awards in international professionally juried competitions, its efficacy had not been experimentally established. All participants completed skin cancer knowledge questionnaires at baseline (pre-intervention) and immediately post-intervention. An independent samples t-test comparing knowledge change scores (post-test minus pre-test) supported the hypothesis that those who were exposed to the skin cancer video gained more knowledge than those who were not exposed, $t = 5.92, p < .05$. An analysis of covariance (ANCOVA) comparing post-test knowledge scores after controlling for pre-test scores, found that the skin cancer video group scored higher on knowledge than did the control group, $F = 117.48, p < .05$. These findings support the efficacy of the skin cancer video for increasing knowledge about skin cancer in the Deaf and Hard-of-Hearing community.

### #12 8:30–10:00

**He Said She Said: Voice Acoustics and Gender Stereotypes**

Mollie Meyer, Psychology (U)

Melody Sadler, Psychology

This study examined how the characteristics of a person’s voice, and how these change across situations, contribute to perceptions of gender stereotypes. Previous research has looked at the relationship between vocal acoustics and femininity; however, this research is the first to explore the effect of vocal acoustics (such as resonance, pitch, and intensity, as well as the variation within these qualities) on gender-stereotypic judgments. Participants were asked to listen to a series of audio-recorded voices that were pre-tested for variation in vocal femininity and acoustic characteristics. All voices were previously recorded reading two separate scripts. In the first script narrators read a baseline passage, while in the second they were told to portray either a high or low position of power. Participants listened to a series of 76 voices (male or female) in one of the script conditions. Participants were then asked to rate the voices on gender-stereotypic attributes (e.g., aggression, competence, affection, and indecisiveness). Scores for gender stereotypes were calculated on average, across judges. Gender stereotype scores were computed for each script by taking the difference between feminine and masculine stereotypes. We first examined the overall gender stereotype across scripts. Second, we looked at the change in stereotype ratings between scripts. Regression analyses of vocal acoustics on gender stereotypes indicated that increases in perceived female stereotypes were positively related to resonance, variability in resonance, intensity, variability in intensity, and pitch. Interestingly, the extent to which a target’s intensity and change in intensity differ between the neutral passage and the negotiation passage predicts an increase in perceived female stereotypes. Vocal qualities can affect the way a person is perceived. The acoustic changes between the scripts demonstrate the malleability of the voice, hence; one can change their voice and subsequently change people’s interpretations of their personality. With the increase of business situations relying solely on vocal communication, such as conference calls, telecommuting, and phone interviews, it is important to understand the impact and broad implications of changing your vocal qualities.

### #13 8:30–10:00

**The Relationship Between Vocal Femininity and Perceptions of Pleasantness**

Karina Medved, Psychology (U)

Sei Jin Ko, Psychology

The present study was conducted to explore the different qualities that make a voice sound pleasant. One element we focused on is vocal femininity- the degree to which one’s voice contains feminine qualities (Ko, Judd & Blair, 2006). Past research had greater concentration on the effect of vocal femininity on gender-based stereotypical judgments. However, there was limited emphasis on the relationship between vocal femininity and pleasantness. The present study aimed to further investigate vocal femininity by focusing on the relationship between vocal femininity and pleasantness. This study also investigated if this relationship was dependent on participant and target gender. We began this study by presenting eighty randomized audio clips of either all-male or all-female voices. Male and female participants were asked to rate each target voice on two dimensions: vocal femininity and pleasantness. First, we tried to find a relationship between vocal femininity and pleasantness. This resulted in eighty femininity and eighty pleasantness ratings for each voice for each participant. Secondly, we investigated if this relationship is affected by between-participant factors of participant sex, target sex and their interaction. Since past research has found that vocal femininity had an effect on stereotypic judgments, (Ko, Judd & Blair, 2006), it was hypothesized that there would be a negative relationship between vocal femininity and pleasantness- as vocal femininity ratings increase, pleasantness ratings decrease. It was further hypothesized that this relationship would depend on participant and target sex as participants may also differ in preference of hearing voices from either the same or opposite sex. Findings indicated that there was a positive relationship between vocal femininity and pleasantness. However, these increases of pleasantness ratings of more feminine voices were only dependent on the sex of the target that was heard. The sex of the actual participant was irrelevant. In sum, as vocal femininity of female targets increased, pleasantness ratings also
increased. However, as vocal femininity increased in male targets, pleasantness ratings decreased. Regardless of participant sex, female voices were rated as more pleasant when their voices sounded more feminine whereas male voices were rated as less pleasant when their voices sounded more feminine.

#14 8:30–10:00
The Effect of Role Model Similarity on Performance under Stereotype Threat
Christopher Cole, Psychology (M)
David Marx, Psychology
Research has shown that concerns about confirming a negative group-relevant stereotype leads to under-performance in threatening testing situations (stereotype threat; Steele & Aronson, 1995). However, exposure to a high achieving in-group role model has been shown to counteract the negative effects of stereotype threat (e.g., Marx, Stapel, & Muller, 2005). The goal of the present research is to replicate and extend past work on in-group role models as well as explore whether increasing role model similarity (e.g. via shared experiences) enhances performance. We hypothesized that an individual who shares both in-group identification and experiences with a role model will have the highest exam performance. Sixty women from SDSU were told they would be completing a math exam that has shown gender differences in the past (to activate stereotype threat). Prior to the exam, however, participants were asked to assist the psychology department by evaluating a job candidate for a math tutor position. These candidates served as the role models. Participants were randomly assigned to read about a highly competent male or female role model who was either similar or dissimilar to the participants in the study (i.e., shared experiences or not with the role model). Participants then took a 20 question math exam under stereotype threat conditions. Results showed that similarity based on shared experiences did not affect performance after exposure to an in-group role model; however, when exposed to an out-group role model, performance actually decreased (relative to the other three conditions) after exposure to a role model who had shared experiences with the participant. Thus, the present research presents an intriguing finding, in that in-group role models are effective regardless of the level of perceived similarity while the effects of out-group role models are effective only when experiences differ from that of the participants.

#15 8:30–10:00
In Their Own Voices: Exploring Physical Activity Intervention Approaches among Native Hawaiian and Pacific Islanders
Kelley Thompson, Public Health (M)
Hala Madanat, Public Health
Statement of Problem: Obesity is a significant health problem for Native Hawaiian and Pacific Islanders (NHPI). Although increasing physical activity is an effective method to combat weight gain, NHPI are one of the least physically active ethnic groups. Low physical activity levels contribute to a variety of health problems, including obesity, heart disease, diabetes, and cancer. Although sparse health-related data exists for NHPI, the evidence universally points to an overall poor health profile. Due to the lack of physical activity interventions conducted on NHPI, this study will provide extensive information that will contribute to the development and implementation of a culturally-specific physical activity intervention. The primary aim of this study is to conduct focus group discussions among NHPI adults to examine psychosocial, environmental and cultural variables related to physical activity participation. Findings from these discussions will be used to tailor the development of a culturally-specific and appropriate physical activity intervention for NHPI. The secondary aim is to use evidence from the focus group discussions in future grant proposals. Methods: A mixed-method approach using qualitative and quantitative data will be implemented. Gender-stratified discussions will be conducted on N=36 NHPI adults, aged 18-65 years, and held at community locations in San Diego. Participants will be given a physical activity questionnaire prior to the focus group discussion. The questionnaire will examine the following topics: stage of change, neighborhood environment, motivators and barriers to physical activity, social support, and self-efficacy. The focus group discussion, lasting approximately one hour, will ask participants about preferred physical activity intervention methods, personal motivators and barriers to physical activity, and reasons for current levels of physical activity. Key informant interviews will be conducted among NHPI community leaders to provide further background information regarding previous culturally-specific intervention methods. Planned analyses: The social cognitive theory and transtheoretical model will be used as a basis for analysis. Psychosocial, environmental, and cultural correlates will be examined based on common themes by several researchers. The physical activity questionnaires will be coded and entered into SPSS software for descriptive and correlation data.
#16 8:30–10:00

**Alcohol Use among Senior Living Centers in Southwest California**

Brandi Martell, Public Health (M)
John Clapp, School of Social Work

Background: Unhealthy use of alcohol by older adults is a serious problem that is under identified and under studied. Objectives: To determine alcohol consumption patterns and the risk characteristics associated with drinking in a sample of community-dwelling older adults. Research on older adult alcohol consumption has generally taken place in primary care, emergency departments and among veterans. This research took place in southwest California. Design: Cross-sectional self-report of older adults who are living in low-income senior community housing centers in Southwestern California. Participants: Residents, 350 adults, over 60 years of age, were approached for screening; the final sample of eligible participants comprised of 174 (49.7%) subjects. Measurements: Demographics, medical and mental health measures, military service history, and quantity and frequency of alcohol and drug use were assessed. Results: Of the 174 older adult subjects, 84 (48.3%) reported an income less than $900 a month, just below federal poverty guidelines. Approximately 40% of the sample had at least one indicator of alcohol use risk. Conclusions: Our estimates provide critical information contributing to current knowledge on older adult alcohol consumption. Future research is needed to better understand the prevention and treatment needs of this population.

#17 8:30–10:00

**Written Expository Texts in Children with Perinatal Stroke**

Carina Fernandez, Psychology (M)
Judy Reilly, Psychology

Children with Perinatal Stroke (PS) offer an unusual opportunity to investigate the nature of brain development for language. Children with PS have suffered a cerebrovascular event in the last trimester of pregnancy up until the first month after birth; most often resulting in a considerable lesion affecting one hemisphere. Whereas adults with an acquired left hemisphere lesion often experience a disruption of language function, children with PS do not display the same language deficits as adults with similar lesions. In fact, children with either right or left brain injury show an initial delay in language, but by middle childhood, their spontaneous spoken language is comparable to their Typically Developing (TD) peers. Moreover, in adult stroke patients their language impairments may also be co-morbid with agraphia, an acquired writing impairment. Their agraphia generally reflects their acquired linguistic impairments. To date, language studies in the PS group have primarily focused on spoken language of children up through primary school age. To extend our understanding of later language development and plasticity for language in children with PS, the present study examines the language development in a more challenging discourse context, expository discourse within the modality of writing. The present study examined written expository texts produced by 24 PS and 24 TD age and gender matched children and adolescents (ages 10-18). Expository texts were transcribed using Child Language Data Exchange System (CHILDES), and analyzed for both linguistic structure (morphological errors, frequency of complex sentences and syntactic depth) and discourse coherence (openings and overall text quality). Results suggest that there are no group differences between the children with PS and TD children with respect to frequency of complex sentences, morphological errors and text openings. However, when looking at overall text quality, the children with PS produced less informative and fluent expository texts than their TD peers. Also, when looking at the quality of complex syntax, children with PS showed a trend of using less sophisticated complex sentences. Results from this study demonstrate that using a more challenging task in writing begins to reveal limits to neuroplasticity for language.

#18 8:30–10:00

**Substance Use Correlates of Smoking among Emergency Department Patients**

Cameron McCabe, Psychology (M)
Susan Woodruff, School of Social Work

Latinos have traditionally been believed to be at lower risk for smoking and tobacco-related illnesses than non-Latino Whites. However, recent studies have shown that lung cancer remains the leading cause of death among Hispanic men, and second leading cause of death among Latina women. Additionally, the risk of smoking among Latino immigrants may increase as they become more integrated into American culture. Few studies have compared smoking prevalence and its correlates for Latinos and non-Latino Whites visiting the emergency department (ED). ED patients are, in general, at high risk for a variety of behavioral risk factors and development of a screening and brief intervention for smoking in the ED could be beneficial. Over 44,000 Latino and non-Latino White patients visiting 11 local ED/trauma units were screened for tobacco, alcohol, and illicit drug use by bilingual health educators as part of a larger, San Diego County public health service, and their sociodemographic characteristics were collected. The present study explored the prevalence of past 3-month smoking among Latino and non-Latino White ED
patients, as well as sociodemographic and co-occurring alcohol and other drug use as correlates of smoking. Results from multiple logistic regression revealed that, while non-Latino White patients smoked more than Latinos (33% versus 25%, respectively), correlates of smoking were similar for the two groups in terms of direction and magnitude of association. The strongest independent predictors of smoking for both groups were gender, annual family income, alcohol severity level, and drug use severity level. The present results suggest that, assuming time and resource limitations, priorities for intervention in both Latinos and non-Latinos should be males, those with lower annual family incomes, and those with higher alcohol and illicit drug use severity levels.

#19 8:30–10:00
Injection First: A Unique Group of Injection Drug Users in Tijuana, Mexico
Meghan Morris, Global Health (D)
Steffanie Strathdee, Public Health

Background: Although the use of illicit drugs in any form can have adverse health effects, much of the harm from illicit drug use can be attributed to the way in which the drugs are administered. Compared to other routes of administration such as swallowing, sniffing, or smoking, injection drug use carries an elevated risk of blood borne viral infections like HIV, hepatitis C virus; bacterial infections; and overdose. The result is that although injection drug users (IDUs) represent a small proportion of all illicit drug users, they suffer a disproportionate share of drug related morbidity and mortality. Methods: We examined behavioral and social factors associated with injecting drugs before any other illicit drug use. Specifically, we hypothesized that ‘injection first’ individuals are more likely to have a family member involved in illicit drug use behaviors, and more likely to report riskier current drug use behaviors compared to individuals who initiated illicit drug use through snorting, smoking, or ingesting. 1052 IDUs aged =18 years were recruited using respondent-driven sampling within Tijuana, Mexico. Logistic regression identified correlates of injecting before other illicit drug use. Results: Of 1,052 IDUs, 12% injected before other illicit drug use. These ‘injection first’ IDUs were more likely to have a longer injection drug use history, with the majority initiating injection drug use alone and with heroin. Regarding current HIV risk behaviors, these IDU’s were more likely to inject at least daily, but less likely to share syringes or traded sex within the past six-months. In contrast to original hypotheses, ‘injection first’ IDUs were less likely to have a family member who has ever used illicit drugs. Injection first IDUs were less likely to use a variety of non-injection drugs in their lifetime and were also no more likely to engage in risky drug use behaviors than other IDUs. In fact, they were less likely to overdose. Conclusion: Our study shows that within this unique population of injection drug users that injecting before other means of drug administration may actually decrease one’s likelihood of using other modes of administration, and injecting other types of drugs.

#20 8:30–10:00
Influences of Home, School, and Neighborhood Environments on Youth Physical Activity
Rachel Millstein, Clinical Psychology (D)
James Sallis, Psychology

Literature suggests that youth physical activity (PA) is related to factors in homes, schools, and neighborhoods. We examined the relative contributions of these environments to youth PA. Adolescents (ages 12-18; N=157), parents of adolescents (N=155), and parents of children (ages 5-11; N=108) from 3 US metropolitan areas completed a survey assessing features of these environments and youth PA. Questions were taken from reliable and validated scales. Youth PA was indexed from z-scores of five items assessing overall PA, sports team participation, and school physical education. For each group (adolescent self report, parent report of adolescents, parent report of children), bivariate correlations were used to select variables (p<0.05) for hierarchical regression models, adjusted for demographics. There were significant correlations for each environment (Pearson’s r=0.20-0.29). For adolescents, amount of home equipment, school equipment, and neighborhood aesthetics were entered into the model. For parents of adolescents, amount of home equipment and neighborhood aesthetics, and for parents of children, amount of home equipment and neighborhood street connectivity were entered into the model. The blocks were entered into the regression in order: demographics, home, school, and neighborhood. For adolescents the full model explained 13.8% of variance and the home, school, and neighborhood blocks were each significant. For parent report of adolescents and children, only the home and neighborhood blocks were significant. Full models accounted for 14.3% and 17.5% of variance, respectively. To optimize explanation of youth PA, multiple environmental factors should be considered. Modifiable factors like increasing access to PA equipment at home and school, and improving neighborhood aesthetics may impact youth PA.
**Session A-3**
**Poster: Child Language Acquisition**
Friday, March 5, 2010, 8:00 am – 10:30 am
Location: Montezuma Hall South

### #21 9:00–10:30

**Influence of Phonology on AAE-speaking Children’s Marking of Past Tense**
Nicole Rosner, Speech Language and Hearing Sciences (U)
Sonja Pruitt, Speech Language Pathology

Morphophonological accounts of tense-marking suggest that children's marking of verbs is influenced by the phonological characteristics of the verbs (Leonard, 1998). Within African American English (AAE), overt marking of past tense is often described as optional (he walk vs. he walked). Given this variable nature, AAE speakers provide an interesting test case for examining the effects of phonological characteristics on verbal inflections. Furthermore, dialect density and vocabulary skills have been linked to both socioeconomic status (SES) and the phonological variables to be examined within the current study. The purpose of this study was to determine whether AAE-speaking children’s rates of past tense marking differ as a function of SES and/or three phonological variables: linguistic constraints associated with AAE, phonotactic probability (PP), and neighborhood density (ND)? Participants included three groups of AAE speakers: 15 six-year-olds from low-income backgrounds, 15 six-year-olds from middle-income backgrounds, and 15 six-year-olds from middle-income backgrounds matched to the LSES children on vocabulary scores. SES was based on maternal education. All of the children were considered dialect speakers as confirmed by blind listener judgments using a 7-point scale (Oetting & McDonald, 2002) and typically developing per teacher and parent report. A past tense productivity probe (adapted from Oetting & Horhov, 1997) was used to elicit the children’s marking of past tense. The probe included 14 opportunities to mark regular past tense. To address the research question at hand, the 14 items were classified as high (N = 7) or low (N = 7) for each of the three phonological variables. Interestingly, no group differences for marking were found, suggesting AAE speakers’ marking of past tense is not affected by SES. Across groups the AAE speaking children’s marking of past tense was affected by the phonological constraints of AAE (High > Low) but not the PP (High = Low) or ND (High = Low) of the items. Overall, the findings highlight the importance of dialect-specific constraints on morpheme production as opposed to general phonological influences observed within the input.
#23 9:00–10:30

The Grammatical Development of ELL Kindergartners as Analyzed by IPSyn

Ashley Galletta, Speech and Language Pathology (M)
Sonja Pruitt, Speech, Language, and Hearing Sciences

The Index of Productive Syntax (IPSyn; Scarborough 1990) has been used to investigate the grammatical development of various groups of children: toddler learning language, clinical populations, and dialect speakers of English. The IPSyn involves the scoring of 56 grammatical structures, and scoring is based on a child’s use of these structures during a 100-utterance language sample. Given that the scoring system is limited to no more than two sufficiently different tokens of each structure, IPSyn is typically described as a tool that measures a child’s emergence of grammar rather than mastery. As such, we question the utility of the tool for detailing the expressive language profile and grammatical complexity of children learning English as a second language (ELL). Specifically, 1) Do ELL kindergartners produce all of the IPSyn items? 2) Are ELL kindergartners’ IPSyn scores related to maternal education levels and English proficiency? 3) What similarities and differences exist between the IPSyn scores of ELL kindergartners’ and their dialect-speaking and language-impaired peers? The participants included 10 typically developing ELL kindergartners. The children ranged in age from 71 to 77 months (M = 73.7 months) and were enrolled in Structured English Immersion classes. The average maternal education for the group was 9.6 years (SD = 3.1 years). On the California English Language Development Test (CELDT), an English proficiency test, the group performed at the beginning level (Scaled Score M = 359.78, SD = 74.37). Typical development was confirmed by teacher and parent report. None of the children were receiving remedial support and/or speech-language therapy. Data were generated from language samples collected during a 20-minute play session facilitated by toys and pictures that reflected examiner-child conversational speech. The samples were then transcribed and coded according to the Systematic Analysis of Language Transcripts software (SALT; 2006). The transcripts were then analyzed for grammatical complexity following the published IPSyn scoring guidelines of Scarborough (1990). Data have been collected and are currently being analyzed. Results will provide speech-language pathologists with a better understanding of the language profile of ELLs. Such an understanding is crucial in the ability to diagnose and treat language impairments.

#24 9:00–10:30

The Importance of Decoding vs. Vocabulary Knowledge for Literacy Acquisition

Kelly Johnston, Speech Language and Hearing Sciences (M)
Sonja Pruitt, Speech, Language, and Hearing Sciences

According to the National Center for Education Statistics, 11% of U.S. students are English Language Learners (ELLs), and 27.4% of students in San Diego Unified School District are ELLs (National Center for Educational Statistics, 2002). 80% of ELLs are Spanish-English bilinguals (Kindler, 2001). These children lag behind their monolingual English (ME) peers in measures of both spoken language and literacy (Bialystok, 2007). The Simple View of Reading states that in order to be a successful reader, one must be able to decode words and apply meaning to them (Gough & Tunmer, 1986). Recent research conducted by Miller et al. (2006) indicates that narrative measures from bilingual K-3rd grade students are predictive of reading both within and across languages. As part of a larger study, 53 bilingual and 32 ME students from kindergarten to second grade were assessed using the expressive vocabulary subtest of the Clinical Evaluation of Language Fundamentals (CELF-4; Semel et al, 2003), the word and non-word reading subtests from the Woodcock-Johnson 3 (WJ3; Woodcock & Mather, 1989), and the Test of Narrative Language (TNL; Gillam & Pearson, 2004). The spoken narratives from the TNL were audio recorded and transcribed by trained student transcribers. The narrative transcripts were then coded using the Systematic Analysis of Language Transcripts (SALT; Miller & Iglesias 2006). Measures of interest included number of utterances and proportion of lexical errors. Total number of utterances and reading scores from the WJ3 were not significantly different between groups. Group differences were found for the vocabulary score from the CELF-4, as well as for proportion of lexical errors (e.g., “strings” for “shoelaces”) between bilingual and ME children. Our results indicate that limited vocabulary of bilingual students creates an additional obstacle to literacy acquisition because they need to decode and to extract meaning while the ME students need only to learn to decode. We can conclude that narrative production can be a good indicator of literacy proficiency within languages, and that the higher prevalence of lexical errors may indicate a gap in literacy for bilingual students.
#25 9:00–10:30

**An Exploration of English Language Learner’s Morphology**

Nicolas Cerney, Speech, Language and Hearing Sciences (M)
Sonja Pruitt, Speech, Language, and Hearing Sciences

Rationale: According to the U.S. Census Bureau, 19.5% of children over 5 speak a language other than English. 9% of English language learners (ELLs) in the schools are Spanish speaking (Kindler, 2002). Considering this increasingly large population of bilingual children, and the limited number of bilingual speech-language pathologists, accurately diagnosing bilingual children with language impairment (LI) is important. Hammer et al. (2003) found that the majority of speech language pathologists have not received adequate training nor feel confident in assessing and diagnosing bilingual children with LI. Therefore, it is crucial to learn more about the linguistic characteristics of typically-developing and impaired ELL children to avoid both over- and under-diagnosis. Purpose: To explore the linguistic characteristics of typically developing ELL children, in order to distinguish these from markers of LI (q.v. Paradis, 2005). Methods: As part of a larger study, 52 Spanish dominant ELLs and 32 monolingual English (ME) children in kindergarten through second grade were administered the sentence recall test from the Clinical Evaluation of Language Fundamentals 4th Edition (CELF-4; E. Semel; E.H. Wiig; & W. Secord, 2003) and a spoken narrative task. Narratives were collected at each child’s school using the Test of Narrative Language (Gillam & Pearson, 2004). The samples were audio recorded and transcribed by trained student transcribers who were blind to the language status of the participants, and coded using Systematic Analysis of Language Transcripts (SALT; Miller and Iglesias, 2006). Measures of interest included number of utterances, mean length of utterance in morphemes (MLU-M), past tense irregular use, and proportions of prepositional errors Results: ME children performed significantly better than the ELL children on the CELF-4. While both language groups showed significant improvement with age for MLU-M and proportion of past tense irregular errors, the ME group performed significantly better than the ELL group on MLU-M and past tense irregular use. No significant differences were found for proportion of prepositional errors. Conclusions: These findings indicate limited morphological proficiency in the ELL group, with verb morphology being particularly weak. These findings will aid speech-language pathologists in more accurately diagnosing children with LI by providing them with patterns of typically developing ELL children.

#26 9:00–10:30

**Word Learning and Habitation in Young Children at 18 Months**

Erica Ellis, Language and Communicative Disorders (D)
Julia Evans, Speech, Language, and Hearing Sciences

This is the first study in a series of studies to tease apart the word learning difficulties in children who are at risk for language delay. The purpose of this first project was to examine the relationship between word learning abilities and vocabulary size in children with low vocabulary levels at risk for continue language delay and children with typically vocabulary at 18 months. Although typically developing children develop language rapidly and effortlessly, some children do not. These children, often referred to as Late talkers, are usually identified between 18-24 months of age by parent report questionnaires and by definition, are below the 10% in language abilities, having less than a 50 word productive vocabulary and very few if any word combinations. The prevalence of late talkers in the general population is between 10-20% (Horwitz et al., 2003), however by school age, 74-83% of these children will have language abilities within the normal range. One critical question then is which Late Talkers are at risk to become children with Specific Language Impairment (SLI)? The ability to habituate and attach meaning to newly segmented words was examined in a total of 34 participants at 18 months of age in typical and low-vocabulary groups. Children were exposed to the 2.5 minutes of an artificial language using real speech where the only reliable cue to the word boundaries is the statistical structure of the language. After exposure to the language, children participated in a novel word-learning task. A looking while listening test paradigm and the Habit 2000 Software (Cohen, Atkinson, & Chaput, 2000) was used. Children’s abilities to segment words from a statistical language and their abilities to attach meaning to those newly segmented words were examined. Preliminary results suggest there are qualitative differences between groups in the ability to attach meaning to novel words and degree of learning. Findings may provide information regarding how children are identified at risk for language delay. Research supported by NIDCD- #DC005650 (PI Evans), SDSU MBRS/IMSD Program NIGMS 1 R25 GM58906-08, NIDCD T32 DC007361 (PI Shapiro), MacArthur Bates CDI Advisory Board.
Session A-4
Poster: Signal Transduction and Gene Expression
Friday, March 5, 2010, 8:00 am – 10:30 am
Location: Montezuma Hall South

#27 8:00–9:30

**Calcium Pathway Gene Expression Changes in Neonatal Cardiocytes Following Rosiglitazone Treatment**

Kirubel Gebresenbet, Biology (U)
Paul Paolini, Biology and CSRC

Pharmacological studies indicate that rosiglitazone (Avandia®, GlaxoSmithKline), an anti-diabetic drug, can improve heart performance (Khandoudi et al., 2002). We hypothesized that the drug’s effect related in part to increased calcium release magnitude and speed during e-c coupling. We therefore investigated the regulatory genes involved in calcium signaling in the heart cell, and the change in key gene expression levels due to rosiglitazone treatment using microarray technology. Earlier qPCR studies in our laboratory of the e-c calcium transient decay rates and of SERCA2 gene expression levels in rosiglitazone treated rat neonatal cardiocytes demonstrated short-term changes in cardiomyocyte amplitude and rate of contraction (Shah et al. Cell. Physiol. Biochem. 15: 41-50, 2004). We have now validated the microarray expression levels using qPCR and Western blots on selected genes in the calcium regulatory pathway. Expression levels for ryanodine (Ryr2), the SR SERCA pump (Atp2a3), the sodium-calcium exchanger NCX (Slc8a), calmodulin (Calm2, Calm3), the dihydropyridine receptor DHPR (Cacnb1, 2, 3), the sarcolemmal calcium pump (Atp2b1) and the L-type calcium channel (Cacna1c & 1e) have now been validated to better understand the basis for enhanced contractility accompanying the drug treatment. An AFP film developer processor and a Molecular Imager ChemiDoc XRS system were used to analyze protein concentration levels for the sample time points (1/2, 1, 2, 4, 8, 12, 16, 24, 36 and 48 hr.). We are also correlating contractility and calcium transient fluorescence measurements with the microarray, qPCR and Western blot measurements. The contraction measurement method, developed by D. Torres and Dr. C. Bazan in our laboratory, uses a novel assessment method employing shape representation by Fourier descriptors to track internal myocyte movements during contraction. These studies appear to demonstrate that the up-regulation of genes is the source of the enhanced contractility accompanying rosiglitazone treatment. Supported by NIH grant 5 R90 DK071512-05, New Interdisciplinary Workforce, by 5 R25 GM 50106-06, Bridges to the Baccalaureate, by the California Metabolic Research Foundation, and by additional support from the CSRC, and the Rees-Steady Research Foundation.

#28 8:00–9:30

**The Potential for Manual Lateralization in Captive Siamangs (Hylobatidae syndactylus)**

Brittany Sabga, Biology emphasis Zoology (U)
Rulon Clark, Biology/Ecology

Handedness, the unilateral distribution of tasks to a particular hand, was once thought to be a uniquely human trait, but is now known to occur in a variety of other primates. Handedness by humans has been utilized as a measure of brain laterality, which is thought to be an important precursor to the evolution of language and other complex cognitive processes. Anthropologists seek to examine the evolutionary origin of handedness through comparisons with non-human primates. This research has generally involved three species, the gorilla (Gorilla gorilla), orangutan (Pongo pygmaeus) and the chimpanzee (Pan troglodytes). These studies have failed to reach a clear consensus, and additional research into manual lateralization in a range of non-human primate species is necessary to obtain a strong understanding of handedness in non-human primates. This pilot study aims to evaluate hand preference for fine motor tasks in a group of 3 captive siamangs housed at the San Diego Zoo. Siamangs were chosen for this study because, of all the great apes, they have been studied the least in this regard. Additionally, siamangs engage in bipedal locomotion, which frees the hands, facilitating handedness expression. Hand use was recorded during multiple observation sessions focused on spontaneous feeding and grooming. Lateral bias was evaluated using the handedness index, the number of right bouts minus the number of left bouts, divided by the total number of bouts. Values of the index range from -1 to 1, with negative values representing a left-hand preference and positive values representing right-hand preference. Preliminary results have established a significant right-hand preference in the two female group members, with the third, a male exhibiting left-hand preference. Preliminary data indicate that siamangs in this group exhibit a unilateral hand preference consistent across some tasks at the individual level, but perhaps not at the population level. Future research will focus on expanding this analysis to other family groups of siamangs in order to obtain sample sizes appropriate for population-level analysis.

#29 8:00–9:30

**The Effect of Sex Hormones on Cardiac Progenitor Cell Proliferation Rates**

Elizabeth Gonzales, Biology (U)
Mark Sussman, Biology

The risk for cardiovascular disease is higher in men than in women, but the reason for this discrepancy remains unclear. Examining the roles of sex hormones on cardiac progenitor cells (CPCs) may reveal some of the differences seen in cardiovascular...
The Functions of the SPX Domain-Containing Proteins in Plant Cold Stress Tolerance
Edgar Campos, Biology (U)
Wenqiong Chen, Biology

The research in our laboratory has focused on studying the molecular mechanisms of plant responses to cold stress (low temperature <100°C and freezing temperature). The rice (*Oryza sativa*) SPX domain-containing proteins have previously been shown to enhance freezing tolerance in transgenic *Arabidopsis thaliana* and tobacco plants. To understand the molecular mechanisms of how the plant SPX domain-containing genes function in cold stress responses, we have taken genomic, molecular, genetic, and biochemical approaches to characterize the rice OsSPX1 as well as the Arabidopsis AtSPX1 and AtSPX4 genes, of which the mRNA expression was altered upon cold stress treatment. Our preliminary results indicate that the plant SPX domain proteins may play an essential role in cold stress response in plants.

#30  8:00–9:30

*The Functions of the SPX Domain-Containing Proteins in Plant Cold Stress Tolerance*

Edgar Campos, Biology & Psychology (U)
Wenqiong Chen, Biology

Pluripotent epidermal precursor cells differentiate and develop into mature neurons. An understanding of the underlying neuronal differentiation gene regulatory network will offer insight regarding scientific challenges posed in abnormal brain development. Using the ascidian sea squirt, *Ciona intestinalis*, we have discovered putative direct gene targets of the microRNA miR-124, a conserved transcriptional regulator specifically expressed in the nervous system. A critical mechanism of miR-124 includes driving neuronal differentiation by silencing unwanted transcripts as neuronal progenitors develop into mature neurons. In mice and chicks, microRNAs regulate their gene targets by binding in a sequence-specific manner to the 3 prime untranslated region (3UTR) of their corresponding transcripts, thus preventing expression through RNA silencing mechanisms. We developed a scoring prediction algorithm which found 866 miR-124 targets with a range of binding scores. Using an in vivo fluorescent reporter assay in ascidian embryos along with quantification using ImageJ, we have verified downregulation of at least one target upon miR-124 misexpression, suggesting that miR-124 targets downregulation via 3UTR binding. Thus, we hypothesize that miR-124-mediated gene regulation is a fundamental mechanism governing neuronal specification in both invertebrates and vertebrates. Future work includes developing a GUI-based application to score other microRNA targets. Further experimentation is needed to develop a mathematical model which determines the role of microRNAs in the gene regulatory network. High-throughput proteomics is currently being assessed as a way to verify predicted targets on a larger scale.

#32  8:00–9:30

*Recognition Site of TACE Cleavage in CSF-1 Receptor Processing*

Arrash Vahidi, Biochemistry (M)
Peter van der Geer, Chemistry

The colony-stimulating factor 1 (CSF-1) receptor is a protein-tyrosine kinase that is expressed on a variety of cell types, including monocytes and macrophages, hematopoietic stem cells, B cells, neurons, placental trophoblast and osteoclast. Its function is best characterized, however, in monocytes and macrophages, where it regulates proliferation, differentiation, and macrophage activation during the immune response. Like other receptor protein-tyrosine kinases, the CSF-1 receptor dimerizes upon binding its ligand, which leads to autophosphorylation on multiple tyrosine residues.
Recently, it has been observed that the CSF-1 receptor is subject to regulated intramembrane proteolysis (RIPping) (2). RIPping consists of two cleavage events. First the receptor is cleaved by TACE in the extracellular region close to the membrane, resulting in ectodomain shedding. Second the remaining protein is cleaved by $\gamma$-secrease within the transmembrane domain region, resulting in the release of the intracellular region into the interior of the cell. We believe that the cytoplasmic region travels to the nucleus to regulate gene transcription. I am interested in identifying amino acid sequences in the ICD that affect its proteolysis and degradation. The recognition sequence for TACE cleavage is unknown but we hypothesize that the sequence is in the ten amino acids adjacent to the extracellular membrane. We will replace those ten amino acids with ten others from receptors, in the same family, that aren’t known to undergo RIPping in order to stop TACE cleavage; which we also hypothesize will stop the signaling pathway altogether.

Method: To investigate this we have increased stability of the epitope-tagged ICD, to investigate their role in localization of the ICD. Wild type and mutant proteins were expressed in 293 lysates were then analyzed via western blot. My research has determined that the recognition site for TACE cleavage is contained within this stretch of ten amino acids and has created a mutant receptor that activates downstream signaling cascades when stimulated with the ligand (CSF-1) but does not undergo RIPping; thus stopping the alternative signaling pathway.

Session A-5
Poster: Microbiology
Friday, March 5, 2010, 8:00 am – 10:30 am
Location: Montezuma Hall South

#35 8:30–10:00
Small Molecule Inhibitors of Bacterial DNA Repair

Gabriel Vahi-Ferguson, Biology (U)
Peter Salamon, Mathematics and Statistics

The Segall lab has previously isolated peptides that have antibacterial activity due in part to their ability to interfere with DNA repair processes. The most potent peptide, WRWYCR, has been shown to bind to the central DNA repair intermediate, a Holliday junction (HJ), with high affinity and this blocks resolution of the HJ and leads to cell death. In order to find non-peptide based compounds with similar activity, we screened for small molecules and isolated several that are antibacterial and inhibit DNA repair enzymes; however, they appear to bind to HJ’s with lower affinity. Quantifying differences in binding to the HJ target will help explain the differences in the activities of the peptides and small molecules. Here we use a solution-based fluorescence assay to measure binding of the small molecule inhibitors to the HJ. These data can then be fit to a curve that will describe the equilibrium binding constant between the small molecules and the HJ, and allow comparisons to be made with the peptides.
Colonization of the Female Reproductive Tract by Group B Streptococcus

Alyssa Jimenez, Microbiology (U)
Kelly Doran, Biology

*Streptococcus agalactiae* (group B streptococcus, GBS), a Gram-positive bacterium found in the female rectovaginal tract, is capable of producing severe disease in susceptible hosts, including the newborn and pregnant women. GBS is a leading cause of invasive neonatal disease and, during pregnancy, women may develop amnionitis, endometritis, sepsis, and urinary tract infections. Neonatal infection can occur when bacteria are transferred from the mother to the infant in utero, following ascending infection from the vagina and cervix across the placental barrier, or by aspiration of infected vaginal fluids during passage through the birth canal. Epidemiological surveillance of maternal GBS isolates has demonstrated that most major capsular serotypes can be isolated from the vagina, however little is known about the specific bacterial factors that promote GBS colonization and persistence in the female reproductive tract. Additionally we hypothesize that the host response to GBS infection may be a crucial step in disease progression. We have developed assays to investigate GBS interaction with human vaginal epithelial cells (VK2/E6E7) and both endo- and ecto-cervical cell lines (End1/E6E7 and Ect1/E6E7). Several representative GBS serotypes exhibited an ability to adhere to and invade both vaginal and cervical epithelium. Analysis of isogenic mutant GBS strains deficient in cell surface organelles such as pili and fibrils, comprised of serine-rich repeat proteins (Srr), indicated that both the pilus associated adhesin, PilA, and Srr contribute to attachment. Preliminary results also showed that this binding elicits gene induction of proinflammatory cytokines and chemokines including IL-6, IL-8, CXCL1, CXCL2 and CCL20, which assist in protective innate immunity. Further studies to characterize the global gene response of vaginal and cervical epithelium to GBS infection are in progress. A better understanding of GBS vaginal colonization and the resultant host response is a necessary step towards the elucidation of the pathogenesis of GBS infection.

Bacterial Genomics Associated with Giant Kelp

Julia Busch, Cell and Molecular Biology (M)
Elizabeth Dinsdale, Biology

Kelp forests in the temperate, nutrient-rich waters of the eastern Pacific Ocean, including California, are some of the most productive of global ecosystems. They support diverse assemblages of benthic algae, invertebrates, finfish, sea birds, and marine mammals. Consequently, changes in the abundance, health, or productivity of these forests could have profound effects on regional patterns of biodiversity, ecosystem function, and ultimately on social and economic interests. In addition, these forests are home to countless numbers of microbes whose important relationship to their host organisms is only now just being realized. To identify the types of microbes associated with kelp, several types of Bacteria were isolated from the interior of kelp collected off the coast of San Diego. The Bacteria were grown on two different types of media, TCBS and Difco. After plating and growing single colonies, DNA was extracted using standard techniques. The genomes were sequenced using 454 technology and compared to existing Bacterial sequences. The results of the first of these sequenced Bacterial genome analysis will be presented. Since kelp give off large amounts of iodine, the bacterial genomes will be analyzed for the presence of these genes to identify whether bacteria within kelp are associated with the use or production of these chemicals.

T-Cell-Based Assay to Identify Novel Drug Targets Against HIV-1-Envelope Processing

Wesley Burford, Cell and Molecular Biology (M)
Roland Wolkowicz, Biology

Despite tremendous progress achieved with anti-retroviral therapy against HIV-1, AIDS remains a devastating disease. The search for novel drugs and targets in the fight against HIV is thus a critical area of research in the biotechnology arena. Terrible side-effects of existing drugs together with the appearance of resistant strains due to the high rate of HIV mutation, begs for novel drugs and assays to facilitate their discovery. It is well established that HIV relies on both the viral protease and host proteases as part of its life cycle. While most existing assays focus on the viral protease, they neglect host proteins which are essential for the production of replicative-competent HIV viral particles. This is the case with the viral envelope which is processed by Furin and similar peptidases (mainly PC1), that reside in the luminal face of the Endoplasmic Reticulum (ER). We are thus developing a specific assay aimed at targeting the host cellular-based processing of the HIV envelope. The assay will allow the monitoring of the HIV-1 envelope processing, which is based on the cleavage of the gp160 envelope protein precursor, resulting in gp120 and gp41 products. Our assay is based on the utilization of a scaffold protein that will not be retained on the cell-surface when processing is blocked or inhibited. This will be detected by flow cytometry, allowing to discriminate between active and inactive...
envelope processing. Importantly, the assay will allow screening of ER/Golgi-localized random peptide libraries for the search of novel antivirals. Moreover, the assay will be developed in T-cells, a cell type readily infected by HIV, through retroviral technology. The assay will certainly facilitate the discovery of novel drugs aimed at HIV-1 envelope processing rather than the host protease, thus avoiding cyto-toxic side-effects.

#39 8:30–10:00
*Group B Streptococcus Vaginal Niche Establishment and Interaction with Native Microflora*

Mansi Garg, Cell and Molecular Biology (M)
Kelly Doran, Department of Biology

*Streptococcus agalactiae* (group B Streptococcus, GBS) remains a leading cause of invasive disease in neonates and certain adult populations. The development of GBS disease is initiated by the asymptomatic colonization of the female genital tract; approximately 20–30% of healthy women are colonized rectovaginally. Subsequent GBS transmission to the newborn can result in serious infection, including pneumonia, sepsis and meningitis. The normal microbiota of the vaginal tract, particularly lactobacilli species, have been shown to inhibit growth of other bacterial species through the production of lactic acid, hydrogen peroxide (H2O2) and other antimicrobial substances. We hypothesize that GBS possess factors that help the bacterium compete with resident microbiota, and establish a niche in the human vagina. Using the human vaginal epithelial cell line (VK2/E6E7) we examined the ability of lactobacillus strains to compete with, exclude or displace GBS for adherence to vaginal epithelium. We observed a significant decrease in GBS recovery from VK2/E6E7 monolayers when lactobacilli were mixed with GBS at a 10:1 ratio, suggesting that excess lactobacilli are required to effectively compete with GBS. Preliminary results also suggest that lactobacilli were unable to exclude GBS attachment or displace a pre-existing GBS population. Our lab has recently identified a GBS two component regulator, CiaR, which promotes GBS survival and H2O2 tolerance; we speculate that the CiaR-regulated genes may contribute to GBS survival in the vaginal tract by resisting H2O2 and other antimicrobials produced by lactobacilli. Targeted mutants in the most highly CiaR-induced genes are currently being examined using our established H2O2 and antimicrobial killing assays, and will be tested in our VK2/E6E7 adherence model to determine their impact on GBS interaction with vaginal epithelium. Identification of GBS factors involved in the competition with native microbiota will provide important insight to vaginal niche establishment, the critical first step preceding infection in pregnant women and neonatal transmission.

#40 8:30–10:00
*Investigating Virus Life Cycles in the Oxygen Minimum Zone Off Iquique, Chile*

Noriko Cassman, Microbiology (M)
Elizabeth Dinsdale, Biology

Oxygen minimum zones (OMZ) are defined as coastal areas in the ocean containing low levels of dissolved oxygen. Analysis of the microbial and viral fraction at different depths in an oxycline from the OMZ off Iquique, Chile has shown low viral to microbe ratios at specific depths. The viruses therefore may be present within the microbial genomes as prophages, in the lysogenic rather than the lytic cycle. We conducted lysogeny induction experiments on OMZ microbial metagenomic samples to investigate whether a lysogenic lifestyle was preferred by viruses at these depths. Metagenomes represent the DNA signatures of all the DNA-based life forms of an environment. Viral DNA sequences from metagenomic samples treated with mitomycin C were compared to non-induced viral DNA metagenomic sequences as well as known viral genes. Differences between the induced and control sequences will be identified, to confirm whether lysogeny is the preferred lifestyle of viruses in the low oxygen waters. Further analysis will be conducted to find anoxic metabolic genes that are involved in the survival of marine microbes under anoxic conditions. These results will characterize the OMZ microenvironment to understand the effects of low oxygen concentrations in the microbial and viral ecology of marine systems.

#41 8:30–10:00
*Designer Virus: Assembling Genes from Different Viruses to Provide a Versatile and Efficient Protein Expression System*

Wesley Williams, Biology (M)
Dr. Jacques Perrault, Biology

RNA polymerase encoded by the T7 bacteriophage is a widely used tool in research and industry because of its simplicity (single polypeptide), high efficiency, and strict promoter specificity. The Perrault lab recently developed a highly versatile protein expression system based on a recombinant vesicular stomatitis virus (VSV-T7) encoding this polymerase (patents pending). A current limitation of this system is that T7 transcripts encoding desired proteins lack a cap structure and require an internal ribosome entry sequence (IRES) to promote protein translation. Here we demonstrate that co-expression of capping enzymes encoded by a large eukaryotic DNA virus (vaccinia virus) promotes translation of T7 transcripts lacking an IRES in the VSV-T7 system. Expression of the vaccinia D1 protein (triphasphatase/guanynyl transferase/methylase) was sufficient for this purpose. Interestingly, co-expression of the vaccinia D12 protein that normally forms a
complex with D1 and stimulates its capping activity, showed no
increase in reported protein translation above D1 alone. These re-
sults suggest that a recombinant VSV-T7 encoding vaccinia virus
D1 protein, or possibly both D1 and D12 proteins, would bypass
the need for an IRES sequence for efficient heterologous pro-
tein expression. The strategy for construction of these designer
recombinant viruses, currently in progress, is also shown here.

#42 8:30–10:00

Analyzing the Effects on Bacterial Cells of Co-Treatments
with a DNA Repair Inhibitor and a Topoisomerase II Inhibitor
Ilham Naili, Cell and Molecular Biology (D)
Anca Segall, Biology

Bacterial topoisomerase inhibitors such as Norfloxacin and No-
vobiciin are effective antibiotics that interfere with bacterial DNA
replication and transcription, and generate double strand DNA
breaks. If this fragmented DNA is not repaired, the cell would not
be able to replicate anymore, and this treatment would be lethal.
The Segall lab has isolated a synthetic DNA repair inhibitory
peptide which, in combination with these topoisomerase inhibi-
tors, leads to a greater killing of bacterial cells. We think this is in
part due to greater accumulation of DNA fragmentation. Quan-
tification of the amount of fragmented DNA for each treatment
would help to determine whether these co-treatments could be
potentially used as a combination therapy. We are also trying to
determine whether DNA breakage and/or repair occur randomly
or at preferred sites in the chromosome. We use the technique
of Pulse Field Gel Electrophoresis (PFGE), which separates long
fragments of DNA according to their size, to visualize the effect of
each treatment on DNA fragmentation. Staining of these gels re-
veals three pools of DNA: 1. the unbroken DNA, which stays in the
treatment plugs, 2. the long fragments of DNA located throughout
the middle of the gel, and 3. the small fragments of DNA that ran
off the gel. The next step is to find a mathematical model to ac-
accurately describe and quantify these three pools of DNA.

#43 8:30–10:00

The Role of Autophagy during Coxsackievirus Infection in
Neural Stem Cells
Jenna Tabor-Godwin, Cell and Molecular Biology (D)
Ralph Feuer, Biology

Recently the process of autophagy has been identified as a
crucial step for the replication and survival of viral pathogens
following infection of the cell. Some viruses have been shown to
manipulate the autophagic process in order to efficiently repli-
cate within the cell, rather than fail prey to this catabolic process
and be destroyed in the lysosome. As with other picornaviruses,
coxsackievirus B (CVB) has been identified as a virus that utilizes
autophagy to its advantage following infection. However, few
studies have determined if virus-induced autophagy occurs fol-
lowing infection of stem cells. Therefore, we studied the role of
autophagy following CVB infection in neural stem and progenitor
cells (NSPCs), which we have previously identified to be highly
susceptible to CVB infection, both in culture and in vivo. Neur-
ospheres, or free-floating spheres generated by NSPCs in culture,
can remain undifferentiated, but also have the ability to differenti-
ate into precursors to all three cell lineages of the central nervous
system, including neurons, astrocytes, and oligodendrocytes.
We measured autophagic induction by utilizing LC3-GFP to label
autophagosomes following infection with a recombinant dsRED
coxsackievirus B3 (dsRED-CVB3). No change in the level of
autophagy was seen in undifferentiated neurospheres following
infection with dsRED-CVB3. However, a decrease in the level
of autophagy was observed in differentiated NSPC precursors
of all three CNS lineages following dsRED-CVB3 infection. In
contrast to the results seen with neurospheres, HL-1 cells, a
transformed cardiomyocyte cell line, showed an increase in the
level of autophagy following dsRED-CVB3 infection. Furthermore,
viral titers in HL-1 cells decreased in the presence of an inhibitor
of autophagy (3-MA), while viral titers increased in the presence
of an inducer of autophagy (CCPA). Hence, we conclude that
the role of autophagy in modulating CVB replication appears cell
type-specific.

Session A-6
Poster: Foods and Nutrition
Friday, March 5, 2010, 8:00 am – 10:30 am
Location: Montezuma Hall South

#44 9:00–10:30

Effects of Green Tea on Inflammation in Atherogenic Diet-
Fed Rats
Antoinette Averna, Foods and Nutrition (U)
Mee Young Hong, School of Exercise and Nutritional Sciences

Acute and chronic inflammation play a critical role on various
disease development including atherosclerosis and heart disease.
Green tea polyphenols possess potent antioxidative properties
and have shown beneficial effects on heart health. In this study,
the effects of green tea polyphenols on serum lipid profiles and
inflammation were investigated in atherogenic-diet fed rats ad-
ministered the green tea extract Polyphenon E (PPE, generously
provided by Polyphenon E International Inc., New York, NY) with
and without dextran sulfate sodium (DSS, inflammation inducer).
The hypothesis of this study was that a green tea polyphenol
diet protects against the risk of cardiovascular disease (CVD) by decreasing plasma blood lipids and c-reactive protein (CRP) inflammatory marker, and increasing antioxidant capacity of rats fed an atherogenic diet. Forty male Sprague-Dawley rats (average 188 g) were equally divided into four groups consuming PPE with DSS, PPE without DSS, no PPE with DSS (control), and no PPE without DSS (control). All groups consumed an atherogenic diet (high fat, cholesterol and sugar). Epididymal fat was lower in rats fed a green tea diet compared to no green tea (controls) ($p=0.0091$). Total cholesterol and LDL cholesterol were reduced in green tea diets compared to controls ($p=0.0006$, $p<0.0001$, respectively). HDL cholesterol was increased in green tea diets compared to controls ($p=0.0014$). CRP was lower in green tea diets compared to controls ($p=0.0001$). Antioxidant capacity was higher in green tea diets compared to controls ($p=0.0163$). Results indicate that green tea polyphenols improved lipid profile and decreased inflammation with greater antioxidant capacity, suggesting that green tea may be a beneficial dietary supplement for the reduction of CVD. This study was supported by SDSU UGP and SDSU NUTR 302L class.

**#45 9:00–10:30**  
**Effects of Dark Chocolate on Lipopolysaccharide-induced Inflammation**  
Afarin Fullen, Nutrition (U)  
Mee Young Hong, Exercise and Nutritional Sciences  
Cardiovascular disease (CVD) continues to be the major cause of death in the United States, Europe, and Asia. With the high mortality rates and costs exceeding $403$ billion associated with CVD, there has been an urgency to find ways to decrease the prevalence of this serious disease. More than fifty percent of the CVD cases are the result of the impaired blood flow in the coronary arteries caused by atherosclerosis (hardening of the arteries). Chronic inflammatory response is being shown to influence the initiation of atherosclerotic lesions in the arteries. Hyperlipidemia, smoking, and hypertension are contributing factors to these inflammatory responses. Cocoa and chocolate products can likely provide protection against inflammation by means of their contents of phenolic compounds, which help maintain the antioxidant status. We have previously shown that dark chocolate increased serum antioxidant capacity. In this study, we determine if regular and slightly bloomed dark chocolates (72% cocoa) lower the risk of CVD by decreasing lipopolysaccharide (LPS)-induced inflammation and lowering and serum lipid profile in rats fed special chocolate diets. Forty male Sprague-Dawley rats (21 days old) were equally divided into four groups: control, control+LPS (2 mg/kg body weight, i.p., 4 hour prior to euthanasia), regular dark chocolate+LPS, and bloomed dark chocolate+LPS. LPS administration induced serum c-reactive protein (CRP), an inflammation marker, levels ($p=0.05$) but there was no change of CRP among diets. Control (no chocolate) group enlarged spleen size with LPS injection ($p=0.0054$). Dark chocolates, regular or bloomed, decreased triglyceride ($p=0.0095$) and total cholesterol levels ($p=0.0362$) compared to control with LPS treatment. These results suggest that slightly bloomed chocolate still contains the beneficial properties of chocolate in regard to improving lipid profiles. In conclusion, dark chocolate has antioxidant capacity and may help lower serum triglyceride and total cholesterol levels in presence of inflammatory agents. These beneficial characteristics of chocolate may contribute to decreasing risks of CVD. This study was supported by CHNR08-810 and SDSU NUTR 302L class.

**#46 9:00–10:30**  
**Dark Chocolates Inhibit Early Preneoplastic Lesions in the Colon Due to their High Antioxidant Capacity and Downregulation of Inflammation Involved Gene Expression**  
Emily Delullo, Nutritional Sciences (M)  
Mee Young Hong, Exercise and Nutritional Sciences  
In 2009 there were $106,100$ new cases of colon cancer alone in the United States. Colon cancer is the second leading cause of cancer death in the United States accounting for $23\%$ of cancer deaths yearly. Cocoa and chocolate products have among the highest concentrations of polyphenols compared to other food sources containing polyphenolic compounds. Specifically, epicatechin, catechin and quercetin are the most abundant polyphenols found in cocoa. An increasing body of epidemiologic evidence supports the concept that diets rich in polyphenols promote health and attenuate or delay the onset of various diseases, including colon cancer. We determined whether dark chocolate protects against colon cancer by inhibiting aberrant crypt foci (ACF) formation. Forty eight male Sprague Dawley rats were randomly assigned to receive diets containing no chocolate, regular dark chocolate or bloomed dark chocolate and injected subcutaneously with saline or azoxymethane (AOM, 2 times during wk 3 and 4). Relative to the control (no chocolate), dark chocolate diets, regardless of being regular or bloomed, lowered the total number of aberrant crypt ($p=0.0124$) and total number of ACF ($p=0.0222$). Chocolate diet-fed animals downregulated the levels of cyclooxygenase 2 ($p=0.0347$) and RelA ($p=0.0445$) gene expression. These results suggest that dark chocolates reduce gene expression of inflammatory mediators due to the
Session A-7
Poster: Astronomy and Physics
Friday, March 5, 2010, 8:00 am – 10:30 am
Location: Montezuma Hall South

#47 9:00–10:30
The Effects of Dark Chocolate on Serum Lipid Profiles and Gene Expression of LDL Receptor and Fatty Acid Synthase
Naomi Shadwell, Nutritional Sciences (M)
Mee Young Hong, Exercise and Nutritional Sciences
Objective Epidemiologic studies have suggested that diets rich in antioxidants, such as dark chocolate, may delay the onset of cardiovascular disease (CVD), number one cause of death in the United States. However, the mechanism is not understood well.
Method Thirty male weanling Sprague-Dawley rats were separated into the following 3 groups: control group, dark chocolate group, and bloomed dark chocolate group. The present study examined the effects of regular and bloomed dark chocolate on antioxidant capacity and gene expression involved in lipid metabolism in Sprague Dawley rats. Results Regular dark chocolate-fed rats showed greater serum antioxidant capacities compared to those of control and bloomed dark chocolate-fed rats (P<0.05). Antioxidant levels of bloomed chocolate group were in the middle of those of control and regular chocolate groups. Both regular and bloomed dark chocolate groups decreased the levels of triglyceride, total cholesterol and LDL cholesterol compared to those of control (P<0.05). Regular dark chocolate group showed greater amount in HDL compared to other two groups (P<0.05). Regular dark chocolate group downregulated fatty acid synthase gene expression (P<0.05) and upregulated LDL-receptor transcription levels (P<0.05). Conclusion These results suggest that bloomed chocolate still maintains some beneficial property of chocolate in lipid profiles but not in full efficacy. Regular dark chocolate may be beneficial for improvement of the risk factors of CVD by its antioxidant activity and modulation of gene expression involved in lipid metabolism such as through upregulation of LDL receptor and down regulation of fatty acid synthase. Further research should include long term studies to determine if results would be similar to our short term study. Also, a clinical human study should be performed as this study used rats as the subjects. Key Words: dark chocolate; bloomed chocolate; texture; antioxidant capacity, serum lipid; cholesterol; HMG CoA reductase, SREBP-2, LDL receptor, Fatty Acid Synthase

#48 8:00–9:30
High and Low Resolution Fresnel Lens on an LCD
Jason Andreoli, Physics (U)
Matthew Anderson, Physics
This presentation details the modulation and use of liquid crystal display generated Fresnel lenses. A Fresnel lens, which can be found in an everyday overhead projector, is a flat rigid body used for focusing and magnifying images. A liquid crystal display, LCD, consists of birefringent molecules that produce a phase shift on a beam of incoming light. A phase shift of light occurs when a light beam's waveform is delayed or a difference is found between the original wave and the recently shifted wave. These shifts can be created through time and/or space. SLM, or a spatial light modulator, is a computer-controlled instrument that can alter the phase and intensity of light. When projected onto an LCD the grey level of a computer-generated image is directly associated with the phase shift of a wave. Creating Fresnel lens, adjusting grey scales, and pixelating the lens images was all made possible by a computer-based program developed in Labview. With the addition of a pixelating parameter, the lens program enables us to understand how a low resolution Fresnel lens differs from a traditional Fresnel lens. A comparison of high and low resolution Fresnel lens was effortlessly conducted through the given setup. As the Fresnel lens’ resolution decreased, a relation between the pixels' grey level pattern and observed beam’s box-like characteristic became apparent. No longer were we fixed on our lens’ ability to focus but fascinated with the diffractive quality the larger pixels were producing. Lowering the resolution of our lens had created obstacles significant enough to disturb the light beams’ path, therefore permitting us to observe the apparent bending of light.

#49 8:00–9:30
Characterization of Carbon Agglomerates Created via Methane Pyrolysis inside a Carbon Particle Generator
Paul Schroeder, Physics (U)
Fletcher Miller, Physics
In a world with rapidly diminishing fossil fuel reserves, solar energy is an extremely promising source of energy. One variant on solar energy that being explored by the SDSU research group is a carbon particle loaded gas receiver. The goal of this project is...
to create a small scale carbon particle generator and study it sufficiently so that it can successfully be scaled-up to power a 5 MW receiver. The carbon will absorb the sunlight radiation incident from the solar array and transfer the heat to the working gas; increasing its temperature which will be fed to a turbine to generate electric power. Our project is to create a particle generator that operates at 1000°C using a radial influx of nitrogen flowing through a ceramic tube to keep methane on the axis of the tube while still allowing it to break apart and form carbon agglomerations. The carbon is fed via Tygon tubing to a variable length extinction tube, then to the Diesel Particle Scatterometer (DPS). The extinction tube uses a 632.8nm HeNe laser that is scattered by the particle flow and measured using a photodetector. The amount of light collected varies based on particle parameters and can be used to measure the efficiency of the particle generator. The DPS, built by Dr. Arlon Hunt of Lawrence Berkeley National Laboratory, uses Mie scattering approximations to calculate principle size, real and imaginary indices of refraction, and agglomeration properties of the carbon particles created. It measures the linear polarization, circular polarization, and intensity at twelve points radially from where a green laser intersects the stream of carbon particles. Preliminary results have shown that acetylene is easily converted to carbon and when used with trace amounts of oxygen, can be used as a catalyst to pyrolyze methane. The particles have an average size of 250nm with a real index of refraction on 1.6 and imaginary index that ranges from nearly 0 to .3 which varies depending on residence time. Our research implies that there exits the possibility to convert methane to carbon particle using acetylene and oxygen to assist in the reaction.

#50 8:00–9:30
An I-GALFA Study of Supernova Remnant G54.4-0.3 (HC40)
Daria Auerswald, Astronomy
Doug Leonard, Astronomy

The interaction of supernova remnant G54.4-0.3 (HC 40) with the interstellar medium was studied using HI 21-cm emission data obtained from the Inner Galactic ALFA (I-GALFA) Survey using the Arecibo 305-meter telescope. High resolution Arecibo H I observations (3.35' beamwidth) show the evidence of a well-defined, rapidly expanding, H I shell at a high velocity range of 75 to 129 km sec⁻¹ evolving through the inhomogeneous interstellar medium. We estimated physical parameters to describe the HI shell. The observed mass is 200±100 solar units, the expansion velocity is 94 km sec⁻¹, the observed kinetic energy is 1.74 ± 0.87 x 10⁴⁹ ergs, and the age is 6.1 x 10⁴ years, assuming a distance of 3.3 kpc.

#51 8:00–9:30
Searching for False Nova in M31
Johnathan Rice, Astronomy (M)
Allen Shafter, Astronomy

More than 800 nova candidates have been reported in M31 over the past century, but some fraction of these events are almost certainly long-period variable stars (LPVs) masquerading as novae. As a first step to estimating what fraction of the nova candidates are impostors, we have cross-correlated the positions of the nova candidates with those of known LPVs. Unfortunately, because both the nova and LPV samples are incomplete, this process will not provide the best estimate of the number of nova impostors. As a next step, we have conducted Monte Carlo simulations where we have randomly populated M31 with novae and LPVs following the observed spatial distributions of these objects in the galaxy. We then searched these simulations for spatial coincidences to estimate the average fraction of the observed nova candidate events that could have come from the LPVs. It is also likely that some of the classical nova candidates will be recurrent novae which are difficult to identify because one must observe at least two outbursts that typically occur between ten and a hundred years apart. Unfortunately, even after observing objects that appear to have multiple outbursts, not all of these will be real recurrent novae. Some will simply be two independent novae that are (nearly) spatially coincident. Once again, we have conducted Monte Carlo simulations to estimate what fraction of these spatial near coincidences we can expect by chance.

Session A-8
Poster: Mathematics and Statistics
Friday, March 5, 2010, 8:00 am – 10:30 am
Location: Montezuma Hall South

#53 8:30–10:00
Computational Study of TTQ Reaction Kinetics
Kirsten Ivey, Applied Mathematics (U)
Andrew Cooksy, Chemistry and Biochemistry

Among the simplest electrobiochemical pathways to characterize experimentally is a series of electron transfer reactions that provide the mechanism for dehydrogenation of methylamine. We describe a computational investigation of the chemical reaction mechanisms for the enzyme activity of methylamine dehydrogenase, focusing on the activity of the cofactor tryptophan tryptophylquinone (TTQ). The free energies, reaction rate constants,
and related effects of temperature, pH, and isotopic substitution are being computed for comparison against experimental observations. Electronic structure calculations are carried out by density functional methods shown to be effective in the study of simpler chemical systems involving the dynamics of conjugated pi electron systems. The COSMO-RS model will be applied to account for the considerable solvent effects in ion-mediated reaction dynamics, and will allow determination of the influence of pH on the reaction system.

**#54 8:30–10:00**  
**Hottest Years of the Contiguous USA since 1895**  
Tobias Regele, Applied Mathematics (M)  
Samuel Shen, Mathematics and Statistics  
A highly sought after goal of climate analysis is the development of a system to accurately record changes in the state of the climate. An important part in climate tracking is to determine errors associated with temperature measurements so that inferences can be made when comparing those temperatures at different times. The aim of this project is to produce a set of point and error estimates for temperatures that represents the entire contiguous U.S. The goal of creating these error values is to statistically rank the top ten hottest years. These rankings can be used together with other weather data to study the effect mean temperature has on climate.

**#55 8:30–10:00**  
**A New Shannon Sampling Theory: From a Circle to a Sphere**  
Julien Pierret, Statistics (M)  
Samuel Shen, Mathematics and Statistics  
Shannon Sampling Theorem can reconstruct a bandlimited signal perfectly, but can the same be done with spherical harmonics? Shannon’s original theorem can be viewed as the sampling of a signal going around a circle. However, extending this view to a sphere is a cutting-edge mathematics research question and has numerous applications. We have contributed to this extension by proving a sampling theorem for Legendre Polynomials and by numerically reconstructed the maximum number of spectra of spherical harmonics by sampling on a regular latitude-longitude grid. Our mathematical and numerical techniques have numerous applications in disciplines that need to extrapolate information from spherical surfaces, such as global climate modeling.

**#56 8:30–10:00**  
**Bayesian Data Blending for Measuring Cloud Fraction**  
Jeff Ledahl, Computational Statistics (D)  
Sam Shen, Mathematics and Statistics  
Bayesian data analysis methodology has become popular in various fields, including climate science, for analyzing observed and modeled data, because it allows relaxed assumptions on the data distribution compared to the least squares approach, and because it outputs a probability density function called the posterior distribution. The posterior distribution is calculated from a prior distribution of the objective parameter under analysis, and a likelihood function, which may be regarded as a conditional distribution based on known data. This paper will discuss the construction of a likelihood function for cloud fraction observations derived from different instruments. In particular, ARSCL (Active Remotely-Sensed Clouds Locations) and TSI (Total Sky Imager) data over the ARM Southern Great Plains (SGP) site from 2001–2007 will be considered. It will be shown that the likelihood function can be modeled by a linear regression procedure and hence is a normally distributed function. However, the prior distribution of the cloud fraction is modeled by a two-parameter Beta distribution, due to the high frequencies of either near-complete coverage (overcast) or near-zero coverage (clear sky) of the clouds over the SGP. The posterior distribution yields not only the median value of the cloud fraction, but also the confidence set that quantifies the errors of merged data from multiple observational sources. The procedure has been applied to revise the cloud fraction data from CAM3 and hence to produce an approximation of a global cloud fraction climatology based on the fusion of the modeled and observed data by the Bayesian approach.

**Session A-9**  
**Poster: Computer and Computational Sciences I**  
Friday, March 5, 2010, 8:00 am – 10:30 am  
Location: Montezuma Hall South

**#57 9:00–10:30**  
**Utilizing 3D Video Game Technology for an Immersive Laboratory Experience**  
Mark Thompson Jr., Computer Science (M)  
Kris Stewart, Computer Science  
College students of the 21st century are “digital natives”, that is, they are immersed in a digital and connected world from a young age. As such, educational software often fails to engage them at the same level as many of their leisure applications, specifically, video games. This project, funded by the National Science
Er3+ and Yb3+ Complexes with Fluorinated Ligands for Near-Infrared Electroluminescence Applications

Pablo Martin-Ramos, Electrical & Computer Engineering

C. Lee, Electrical & Computer Engineering

Infrared Electroluminescence Applications

In the following we report the synthesis, spectroscopic properties and the first experimental evidence of an efficient energy transfer from optically excited ligands, which act as light-harvesting antennae, to lanthanide ions through an efficient intramolecular energy transfer from the optically excited ligands, which act as light-harvesting antennae.

With the aim of studying this transfer we have used, together with antennae phenanthroline ligands, β-diketone ligands capable of preventing concentration quenching by sterically shielding neighboring Er3+ ions from each other. We propose the combination in a same complex of bathophenanthroline and fluorinated β-diketone ligands (carrying the lower energy C–F oscillators in place of the C–H ones) as a resource to achieve an efficient energy transfer. In contrast, the presence of ligands with high-energy oscillators such as 0–H from hydroxyl or water (which are able to quench the metal excited states nonradiatively) lead to decreased luminescence intensities. With the aim of illustrating this opposite behavior we report the synthesis, the structures and both Raman and the photoluminescence spectra of the following novel complexes: Er(acac)3bath [acac = acetylacetonate; bath = bathophenanthroline]; [M(dfhd)NO2-phen] [M = Er, Yb; dfhd = decafluoro-2,4-heptanodionate; NO2-phen = 5-nitro-1,10-phenanthroline]; Er(NO3)4\[Na5(OH)4\]•14H2O; and Er(CF3SO3)3. Experiments on the application of these complexes for Organic Light-Emitting Diodes (OLEDs) and for EDFAs and YED-FAs are being conducted.

#58 9:00–10:30

Er3+ and Yb3+ Complexes with Fluorinated Ligands for Near-Infrared Electroluminescence Applications

Pablo Martin-Ramos, Electrical Engineering (M);

Long C. Lee, Electrical & Computer Engineering

Lanthanide ions emitting in the near-infrared (NIR) region possess an intrinsically small molar absorption coefficient in the ultraviolet (UV)–vis–NIR spectrum, which is unfavorable for pumping efficiency. On the contrary, using organic lanthanide complexes it is possible to populate the excited state levels of the emitting ion through an efficient intramolecular energy transfer from the optically excited ligands, which act as light-harvesting antennae. With the aim of studying this transfer we have used, together with antennae phenanthroline ligands, β-diketone ligands capable of preventing concentration quenching by sterically shielding neighboring Er3+ ions from each other. We propose the combination in a same complex of bathophenanthroline and fluorinated β-diketone ligands (carrying the lower energy C–F oscillators in place of the C–H ones) as a resource to achieve an efficient energy transfer. In contrast, the presence of ligands with high-energy oscillators such as 0–H from hydroxyl or water (which are able to quench the metal excited states nonradiatively) lead to decreased luminescence intensities. With the aim of illustrating this opposite behavior we report the synthesis, the structures and both Raman and the photoluminescence spectra of the following novel complexes: Er(acac)3bath [acac = acetylacetonate; bath = bathophenanthroline]; [M(dfhd)NO2-phen] [M = Er, Yb; dfhd = decafluoro-2,4-heptanodionate; NO2-phen = 5-nitro-1,10-phenanthroline]; Er(NO3)4\[Na5(OH)4\]•14H2O; and Er(CF3SO3)3. Experiments on the application of these complexes for Organic Light-Emitting Diodes (OLEDs) and for EDFAs and YED-FAs are being conducted.

#58 9:00–10:30

CyberWeb

Carny Cheng, Computational Science (M);

Mary Thomas, Computer Science

No Abstract Submitted

#60 9:00–10:30

Performance Results Using Distributed Coupling Toolkit for Earth Sciences Models

Dany De Cecchis, Computational Sciences (D);

Jose Castillo, Computational Sciences Research Center

Computer simulations become more realistic as they include interactions between different physical phenomena that happen naturally at different spatial and time domains, and their modeling possibly involve different discretization schemes. The Distributed Coupling Toolkit (DCT) is a library to couple models in a parallel distributed environment. Here we present some multi-physics and multi-resolution examples for earth science applications using DCT. We show some performance and scalability results.

#61 9:00–10:30

On Packet Fragmentation of H.264 Video for Goodput Maximization

Kashyap Kambhatla, Engineering Science (D);

Sunil Kumar, Electrical and Computer Engineering

Wireless video communication is always associated with random or bursty errors introduced by the channel. In the absence of FEC these undesirable channel effects cause complete packet loss at the receiver. Fragmentation is a process of reducing application layer packet sizes at the Medium Access Control (MAC) layer...
to increase the packet success rate and overall goodput. The benefits of fragmentation are predominant in transmitting error resilient H.264 data which consist of independently decodable network abstraction layer units (NALU). We show that there exists an optimum fragment size at which we attain maximum goodput for non-prioritized H.264 video. We also discuss the benefits of prioritization, the maximum achievable goodput by fragmentation and the scope and advantages of selective re-transmission for prioritized H.264 video data. Finally we discuss the relationship between the achievable goodput and the video distortion experienced in the video.

#62 9:00–10:30

**Smart Slice Prioritization in H.264 AVC**

Seethal Paluri, Computational Science (D)
Sunil Kumar, Electrical and Computer Engineering

H.264 is the newest video coding standard from ITU-T Video Coding Experts Group and the ISO/IEC Moving Picture Experts Group. The enhanced compression performance and “network-friendliness” makes this standard very popular. However, when compressed video data is transmitted over a wireless network it is highly susceptible to channel errors. It is therefore important to prioritize the data so that good perceptual video quality can be maintained at the receiver under unreliable channel conditions. Video prioritization can be achieved either at the Video Coding Layer or at the Network Abstraction Layer (NAL). Packet loss visibility in H.264 has been modeled using a Generalized Linear Model (GLM), to compute the probability of a packet loss being visible to the human eye based on behavior of certain content independent and content dependent factors. These include Residual Energy (RENGY), Initial Mean Squared Error (IMSE) and Motion Vectors (MV). However, past approaches have been limited to subjective quality testing. We propose to analyze the effect of these factors by mathematically modeling the contribution of each of these factors towards distortion and consequently prioritize the video data based on this information. This will support in improving video data quality over real time transmission where the applications are sensitive to channel errors.

Session A-10
Oral Presentation: Explorations of the Visual
Friday, March 5, 2010, 8:00 am
Location: Backdoor

#63 8:00

**What’s Art Got to Do With It?**

Robert Steinberger, Art (Multimedia) (U)
Mark Wheeler, Philosophy

What’s art got to do with evolution? Darwin laid the foundation for the study of art not only as cultural phenomenon but as a natural one as well. The origin of art is an unanswered question, but based on Darwin’s theories, it can be explained by three means of selection: Natural selection, sexual selection and human social selection. In terms of natural selection, art could be seen as an adaption or by-product, but instead of proving that art is an adaptation or dismissing it as by-product, we should show how its existence and character are connected to Pleistocene interests, preferences, and capacities. The arts are a way that humans achieve pleasure by catering to cognitive preferences that were adaptive in the ancestral environment. For instance, studies show that we cross-culturally prefer paintings of natural landscapes that were advantageous for survival. Natural selection focuses on the survival in hostile environments, which makes it an insufficient explanation for the existence of art, because artists use a lot of resources inefficiently in a strictly evolutionary sense. Sexual selection fills that void: the best way for an individual to demonstrate the possession of an adoptive quality, such as money, health, imagination, strength, is to be seen wasting those very resources. However critics argue, that human social selection plays a role outside the more limited conditions of sexual selection. As so often in science, there is not one correct answer and probably a combination of these three forces (natural selection, sexual selection and social selection) have contributed to the origin of art.

#64 8:15

**Theatre as Grief Therapy: Healing Through the Process of Incorporating Autobiographical Content into an Original Dramatic Work**

Joan Hurwit, Theatre Arts (M)
D.J. Hopkins, Theatre Arts

We live in a time when reality has evidently trumped fiction. Memoirs have gained popularity, reality television is here to stay, and young people spend more time updating their Facebook
status than they do watching the evening news. In theater,
docudramas have become more popular on stage, but only after
what seems to be a long standing history in American theatre.
So-called fictitious works like Eugene O’Neill’s masterpiece, Long
Day’s Journey Into Night, is a barely disguised portrait of the
author and his home life. The classic drama Death of a Salesman
was conceived when Arthur Miller bumped into his Uncle Manny,
a salesman. From Tennessee Williams to Edward Albee, play-
wrights have followed the mandate: Write what you know, thus
blurring the line between fact and fiction. For dramatists, theatre
serves a function analogous to religion: a forum for group reflec-
tion, confession, expiation and celebration. The theater serves as
a communion between actors and audience. However, I believe
that this process starts much earlier than the stage; it starts on
the page. After suffering four very sudden and recent deaths in
my own family, I have turned to playwriting as a coping mecha-
nism. It offers a therapeutic method to play out my own family’s
drama by creating characters in a controlled environment that
need to heal when faced with a devastating situation. 31 Ludlow
serves as my own personal grief therapy, depicting the pain and
strain of relationship when three sisters are surrounded by death
and faced with the reality of life after death. South African play-
wright Athol Fugard said there is a “central importance of theater
to the psychic well-being and sanity of a society.” Through writing
this play based on the recent deaths and events in my own family,
I would add to Fugard by admitting that the therapeutic nature of
writing and manipulating characters has contributed to my own
healing process and sanity.

#66 8:45
Twofold

Christy Oates, Furniture Design/Woodworking (M)
Wendy Maruyama, Art, Design, and Art History

Twofold is a series of folding furniture with a dual function. When
the furniture is not being used, they hang on the wall as two-
dimensional compositions. The pieces can be removed from
the frame, unfolded, and used as functional objects. After use,
the furniture is stored on the wall in its frame. Utilizing fold-
ing elements such as hinges, bungee cord and other structural
principles, the pieces transform in one fluid motion. The interac-
tive aspect of these forms creates an awareness of how furniture
performs within our personal space and its importance in daily
routine as an extension of the body. The graphic images trans-
form from a representation of an origami object in mid-fold on the
outer surface to a completed representation of an origami object
on the inner surface. The origami graphics symbolize a two-
dimensional surface that folds into a three-dimensional object.
These graphics echo the process of the folding furniture while
it’s being transformed. Like origami, the folding process involves
effortless manipulation to fold the material into its intended form.
In addition to origami, the inspiration for this work originates from
nomadic living in small apartments, resulting in the continual
reorganization of my own personal space. I am passionate about
environmental conservation; I choose to take up less space and
create less waste in my personal life and in the work I create. My
furniture is designed in a CAD-based program, laser cut out of
sheets of sustainably harvested plywood with minimal material
waste, assembled using eco-friendly adhesive, and sealed with
water-based finishes. The flat-pack aspect of the work suits a
mobile lifestyle for those who move frequently while reducing the
cost and pollution associated with shipping and relocating. The
compact nature of the work provides more open space and pro-
motes an efficient use of a small living environment. This allows a
small space to be in constant flux; transforming from one activity
to the next throughout the day as furniture is taken off the wall,
used, and put back into its frame. When grouped together, these
pieces establish a ritual performance of efficiency that diffuses
into one’s lifestyle.

#67 9:00
Walking in the Plaza: Site-Specific Urban Sculpture and the
Performance of Pedestrians

Lauren Beck, Theatre Arts (M)
D.J. Hopkins, Theatre, Television and Film

I have compared two site-specific urban sculptures, Richard
Serra’s Tilted Arc, and Anish Kapoor’s Cloud Gate. I am interested
in exploring how the viewers of these sculptures — pedestrians
passing by — create the meaning of these works. In the 1960s,
The General Services Administration (GSA) and the National
Endowment for the Arts (NEA) began commissioning public
sculptures. The art was “public” in the sense that it sat outdoors
in public property, usually either politely examined for a moment
or ignored altogether. It was not until the mid 1970s that govern-
mental agencies began to commission works that were designed
for specific locations. These new, site-specific works emphasized
social messages over their particular aesthetic qualities and ac-
tively included viewers and passersby as artistic elements. Tilted
Arc, by Richard Serra, occupied Federal Plaza in Manhattan from
1981 to 1989. Cloud Gate, by Anish Kapoor, was constructed in
The purpose of the present study is to assess automatic negative interpretation biases in dysphoric individuals using an experimental paradigm. Participants are undergraduate students classified into two groups based on the Beck Depression Inventory – Second Edition (Beck, Steer, & Brown, 1996). Participants complete a modified version of the Word Sentence Association Paradigm (WSAP; Beard & Amir, 2009) to assess negative interpretation biases. The WSAP presents an ambiguous sentence followed by an unambiguous word. The unambiguous word is either negative or benign. Participants are instructed to indicate via mouse click whether the word and the sentence are related. Automatic interpretation biases are measured by response latencies and endorsement rates. Dysphoric individuals responded more quickly to endorse negative interpretations than did non-dysphoric individuals. Further, dysphoric individuals endorsed a greater percentage of negative interpretations than did non-dysphoric individuals. These results demonstrate that automatic negative interpretation biases can be assessed in dysphoria. Although this study is limited by the use of a non-clinical sample, these results imply that it may be possible to assess automatic interpretation biases in depression.

The Effects of Betaine on Hyperactivity Associated with Developmental Alcohol Exposure

Yosef Nacach, Psychology (U)
Jennifer Thomas, Psychology

Previous experiments in our lab have shown that supplementation of choline, a nutrient important for brain development, can reduce the teratogenic effects of prenatal alcohol exposure. Specifically, choline improves performance on a variety of cognitive tasks, including open field exploration, spatial learning, working memory, and trace Pavlovian conditioning. However, the mechanisms of choline’s actions are not known. Choline acts as a precursor to the neurotransmitter acetylcholine, acts as a precursor to cell membrane constituents, and also acts as a methyl donor which affects the homocysteine-methionine cycle. A tightly coupled nutrient, betaine, is synthesized from choline and mediates choline’s actions on the homocysteine/methionine cycle. If choline affects brain and behavioral development by increasing betaine, then similar protective effects should be produced by administration of betaine, a nutrient also known as Trimethylglycine (TMG). The present study examined the effects of administering betaine after developmental ethanol exposure. Sprague-Dawley rats were randomly assigned to one of six treatment groups on postnatal
#74  8:30

**Metabolic Responses to Exergaming Among Older Adults**

Kristi Robusto, Exercise Physiology (M)
Jeanne Nichols, ENS

“Video games that require physical activity ("exergames") have been growing in popularity among older adults. Despite the increased interest, there is a lack of research addressing physiological demands of game play in this population. The purpose of this study was to determine energy expenditure (EE), heart rate (HR) response, and perceived exertion (RPE) of older adults while playing different exergames. A convenience sample of 13 older adults (6 male, 7 female; aged 60 – 85 yr), performed three 5-min bouts of three selected exergames (Wii bowling, Xavix Boxing, & Dancetown) that had been identified as enjoyable in a prior ‘taster session.’ Participants rested between bouts until their HR returned to within 10 bpm of their pre-exercise heart rate. The order of testing was not randomized (bouts went from the least intense to the most intense game). During each bout, oxygen consumption (VO2) and HR were assessed continuously and recorded every minute. The last 4 minutes of each bout were averaged for analysis. RPE (6-20 scale) was recorded at the end of each game. Group means (±SD) for Bowling, Boxing, and Dancetown, respectively, were: VO2 = 5.57 (2.2), 10.89 (5.8), 10.37 (3.4) ml/kg/min; EE = 1.5 (0.68), 3.22 (2.91), 2.67 (1.02) kcal/min; HR = 84 (13), 104 (13), 108 (17) bpm; and RPE = 9.4 (1.3), 12.7 (1.78), 13.9 (1.8). Repeated measures ANOVA revealed Boxing and Dancetown to increase VO2, EE, HR, and RPE to a greater extent than bowling (all comparisons p<.01), although all games were of light to moderate intensity in terms of metabolic equivalents (METS). These findings suggest that if older adults use exergames as an alternative to sedentary behaviors, they may provide them with a mild cardiovascular stimulus.

#75  8:45

**Construct Validity of the Item-Specific Deficit Approach in HIV**

Jordan Cattie, Psychology (D)
Igor Grant, Psychiatry, UCSD

The Item-Specific Deficit Approach (ISDA) was introduced by Wright et al. (2009) as a method for measuring component processes of episodic memory using the California Verbal Learning Test (CVLT; Delis et al., 1987; 2000). This approach is congruent with a substantial literature suggesting that episodic memory is composed of three overlapping but functionally dissociable stages (van Strien, Kappaert, & Witter, 2009) that include: 1) encoding (information is transformed into a storable format), 2) consolidation (information is stored for later use), and 3) retrieval (extraction of stored information; Wright et al., 2009). The ISD approach is theorized to be superior to traditional CVLT indices due to increased specificity of the scoring methods and decreased susceptibility to the potentially confounding effects of variable attention. The present study sought to evaluate the construct validity of the ISD approach in an HIV sample using the CVLT-II. Episodic memory impairment is highly prevalent in HIV (40-60% according to recent estimates) with deficits typically escalating with advanced disease (Woods et al., 2009). Evident in both visual and verbal tasks, episodic memory may be one of the most sensitive indicators of HIV-associated neurocognitive disorders (HAND; Carey et al., 2004), and is largely driven by frontostriatal as well as hippocampal circuit neuropathology (Castelo et al., 2006). Pairwise comparisons revealed lower performance on Encoding, Consolidation, and Retrieval indices in HIV+ individuals with HAND as compared to the HIV- (ps < .05) and HAND- (ps<.05) groups, who did not significantly differ from one another on any index (ps > .10). These group differences were not better explained by potential confounding factors, such as demographics, psychiatric comorbidity, or HIV disease severity. Further investigation is nevertheless needed to determine whether ISDA indices demonstrate incremental predictive and ecological validity as compared to the well-validated traditional CVLT measures.

#76  9:00

**A Randomized, Double Blind, Placebo-Controlled Pilot Study of Memantine in Huntington’s Disease**

Luis Medina, Clinical Psychology (D)
Paul Gilbert, Psychology

Background: Huntington’s disease (HD), a neurodegenerative disorder resulting from the trinucleotide CAG expansion of the HD gene, is typified by both cognitive dysfunction and motor symptoms. Memantine is an NMDA receptor antagonist that has been shown to be effective in the treatment of Alzheimer’s disease. Although not currently indicated for the treatment of
HD, memantine may have implications for the management of HD cognitive symptoms. Methods: Fifty-five HD patients (mean age=51.55, mean education=14.44, mean CAG repeats=41.76) were randomly assigned to either memantine 10 mg or identical-appearing placebo BID for 12 weeks. Then, both groups received memantine for another 12 weeks. Cognitive, behavioral, and functional data were collected at baseline, 3 months, and 6 months. Results: Hierarchical linear modeling showed that participants on memantine experienced a significant (p<.05) improvement in performance on attention (Stroop Reading, Brief Test of Attention), working memory (Digit Ordering Test), and delayed recall (Hopkins Verbal Learning Test) not observed in those on placebo. However, memantine users did demonstrate a significant (p<.01) worsening in motor symptoms on the Quantitative Neurological Examination (QNE). There were no statistically significant differences between groups on the NPI or ADCS-ADL scale. Conclusions: Results indicate potential benefits of memantine on cognitive symptoms in HD, but possible negative effects on motor symptoms. Larger studies will be needed to confirm and extend these findings.

Session A-13
Oral Presentation: Gender Studies
Friday, March 5, 2010, 8:00 am
Location: Chantico

Queer Ecofeminism and the Liberation of Mother Nature
Alicia Nichols, English (U)
Bonnie Scott, Women’s Studies

Before the United States was formed, the Americas were inhabited by non-patriarchal natives. In order to justify colonization, constructions had to be formed that made Westernization imperative to the natives and concealed the inhumanity of robbing them of their land and cultures. To do so, conquerors spread beliefs about natives being naturally primitive and in need of “the white man’s” guidance. They also declared them “godless” and enacted many injustices toward them, using divine order as an excuse. Upon observing sexual practices involving male-male and female-female attraction, the sexualities of the natives were also made to seem deviant. Colonizers went to great lengths to punish anything they saw as being detrimental to a specific form of heterosexual coupling, predicated on the presence of a dominant male and a subordinate female. In fact, the very structures of Western society depends upon an internalization of heterosexuality as being the only sexual option. What is now known as the “missionary position” was advocated as the “natural manner of intercourse” since it was assumed to be the most efficient method in impregnating the female. (Gaard, 35) Also, colonizers likened the phallus “to a plow and the woman to the earth,” drawing comparisons between women and the earth that are mutually supportive of the colonization of both. Natives were compared to wild, irrational women, in need of the strict reprimands enforced by reasonable, “advanced” men. Colonization, then, “can be seen as a relationship of compulsory heterosexuality whereby the queer erotic of non-westernized peoples, their culture, and their land, is subdued into the missionary position—with the conqueror ‘on top.’” (Gaard, 37) Without attempting to internalize ideas about female submission within themselves and the natives, colonizers could not justify the male role of domination of the land or other feminized entities. In this way, the act of sex became the vehicle for the implementation of ideologies previously foreign to the natives: including hierarchy, male supremacy, and a severe emphasis on productivity coupled with a de-emphasis on pleasure.

Aristotle the Sex Therapist: Modern Sex From an Ancient Perspective
Matt Jakstis, Philosophy (U)
Mark Wheeler, Philosophy

Virtue ethics is a prominent moral theory dating back to the Greek philosopher, Aristotle. Sex is a prominent human activity dating back to the beginning of our species (and beyond). How can the prior be used to understand the latter and what wisdom can be gained about the role of sex on an individual and social level? In a society saturated by overt sexuality, abstinence is perceived as increasingly prudish and unnecessary to personal well being, but research data consistently shows a powerful correlation between premarital sex and higher divorce rates. By filtering this data through the perspective of virtue ethics, which places great emphasis on personal character rather than rules or consequences in determining the morality of an action, some possible reasons behind the harmfulness of premarital sex can be made visible—chief among these is the detrimental effects of premarital sex on the individual character and the habitual association of sexual intercourse primarily with pleasure rather than commitment and emotional bonding. Of particular interest in this understanding is the habitual nature of human beings—our tendency to follow patterns which are repeated often—and the resulting effects various types of sexual habituation bear on our interpersonal relationships.
#79 8:30  
**A Queer Reading of The Merchant of Venice**  
Aria Fani, Comparative Literature (U)  
Michael Borgstrom, English & Comparative Literature  
How do different types of relations, defined in a patriarchal and heteronormative Elizabethan society, shape one’s sexual behavior? In order to answer the question, I need to examine the parameters of masculinity and femininity, the implications of social segregation of women and dichotomization of masculine and feminine in terms of cultural, social and political polarities. In the Elizabethan era, men were expected to form a heterosexual marriage while exercising their economic and political powers. The dichotomization of masculine and feminine further segregates men and women—especially in the areas of politics and economy—and creates an environment in which homosocial bonding is the ramification and the intuitive response to marginalization and seclusion. These dynamics have overwhelmingly visible sexual implications in Shakespeare’s The Merchant of Venice. In the society of 16th century Europe, Bassanio and Antonio freely exercise their political and economic powers—as male prerogatives. Even though committed to Portia, Bassanio’s friendship with Antonio continually disrupts his heterosexual relationship. Portia, as a woman, is doomed to the “indoor” status of the hierarchy where she plays her domestic role and is merely the instrument of money circulation. Portia turns to an alternate kinship structure, and attempts to protect her rights through same-sex bonding with Nerissa, which is ironically oppressed within the heteronormative framework of the Elizabethan society. Not only does homosocial bonding alter Portia’s sexual and non-sexual interactions, but it also permits a degree of subjectivity that might otherwise be unavailable. The female-female bonding further offers ways to break down heteronormativity and its allegiance to patriarchal structures. That is an ironically positive ramification to patriarchy and in this instance is a refusal of heterosexuality as the only natural sexual orientation.

#80 8:45  
**Desire, Disruption and Liberation in the Queer(ed) Mosh-Pit**  
Jennifer Gutierrez, Comparative Literature and Chicana and Chicano Studies (U)  
D. Emily Hicks, English/Comparative Literature and Chicana and Chicano Studies  
The more recent efforts of the queer-core band Limp Wrist (2004-present) signify the use of productive desire, via the queering of the mosh-pit, as means for disrupting rigid notions of the punk cultural identity. The queer(ed) mosh-pit offers a marginal free space wherein productive desire is a vehicle for the disruption of hegemony within the hardcore-punk community. Sharing elements with Bakhtin’s carnival, this spatially determined transgressive site is one in which the grotesque and threat of violence exist simultaneously with efforts to dismantle rigid cultural identity. The methodology for this research is based on an analysis of primary documents produced by Limp Wrist and cultural participants through a queer lens informed by contemporary discussions on productive desire and critical intervention. This research shows that productive desire as a means for working towards individual and communal liberation has been present in certain cites within hardcore-punk culture. In addition, it adds to contemporary academic discussions concerning the formation of punk cultural identity, resistance to oppression in diverse autonomous cultural communities and discussions of youth culture and resistance.

#81 9:00  
**Latino Drag Queens: Negotiating Sexual, Class, and Racial/Ethnic Identities**  
Alejandra Gonzalez, Chicana/o Studies (U)  
Victoria Gonzalez-Rivera, Chicana/o Studies  
While scholars have established that sexuality is a fluid and complex human endeavor, popular portrayals of Mexican American/Chicano sexualities tend to perpetuate stereotypes of overly sexual “macho” men and sexually repressed women. The stereotypes fail to address the diversity of experiences among heterosexuals and completely ignore homosexual/queer experiences, particularly among working class Mexican Americans/Chicanos. This qualitative ethnographic research study explores the complexities of working-class Mexican American/Chicano sexuality on the U.S./Mexico border. Specifically, the study addresses the lived experiences of Latino drag queens. The data for the study was collected through in-depth oral interviews and through participant observation in clubs/bars that host drag shows. My research indicates that Latino drag shows geared towards heterosexual working-class Mexican-origin audiences differ from shows that take place in mostly white, mostly gay venues. The former tend to be less sexualized and try to maintain “respect” between performers and their audience. Not surprisingly, Latino drag shows close to the border, in working-class Mexican-origin neighborhoods, tend to be less popular than Latino drag shows that take place as part of “Latin nights” in Hillcrest, considered to be San Diego’s gay neighborhood. The so-called “rainbow” nights that exist in many clubs patronized by mostly heterosexual Mexican-origin couples complicates the stereotypes noted above. The life stories of the Latino drag performers that were interviewed also complicate one-dimensional portrayals of Mexican immigrants’ lives.
Session A-14
Oral Presentation: Anthropology and Archaeology
Friday, March 5, 2010, 8:00 am
Location: Council Chambers

#83 8:00
“The First White Man On The Mountain”: Archaeological, Historical, and Cultural Examinations of Nate Harrison’s Identity
Shelby Gunderman, Anthropology (M)
Seth Mallios, Anthropology

This presentation uses the life of Nate Harrison, an African-American homesteader living in San Diego County, circa 1880 until his death in 1920, to explore how an individual uses his identity to adapt to his environment and gain social capital. Both a scientific and humanist approach is used in the analysis of the archaeological record, historical documents and the landscape. This approach is carried out through a symbolic analysis of the data. The Nate Harrison Historical Archaeology Project provided the above data through student excavations of Nate Harrison’s homestead in the summers of 2004 through 2008 and historical research from 2003 through 2010. A purely scientific analysis of the archaeological record of Nate Harrison’s homestead provides interesting data about his life, such as the time period, subsistence practices, and socioeconomic status; however, it fails to identify the uniqueness of Nate Harrison. By using both a scientific and humanist approach, Nate Harrison’s extraordinary position as a well-known and respected resident in the racially and ethnically prejudiced San Diego County becomes apparent. The examination of Nate Harrison’s identity demonstrates that an individual can possess multiple group affiliations. Also, ethnic or racial identity is not necessarily the predominant factor in the formation of a group identity, especially within an ethnically diverse community. The intentional formation of group identities is an expression of agency, and enables individuals to increase their social capital by forming a collective sense of belonging with those who would otherwise be outsiders. The study of Nate Harrison is an example of the ways in which individuals in a discriminatory society can be active participants in shaping their environment. Nate Harrison did not just react to the racially prejudiced society in which he was forced to live; rather he purposefully manipulated the ways other perceived his identity to his advantage.

#82 9:15
Gender Variant Neologisms
Kelly Meehan, Sociology (M)
Michael McCall, Sociology

There is little awareness in the mainstream regarding trans-issues. One of the major issues surrounding the lack of awareness is the issue of what to call transgender people. Cisgender people (those who do not identify as transgender) want to know how to refer to transpeople. Given the limitations of the binary-based vocabulary available to us in this culture, it is important to assess the use of several gender-variant neologisms (GVN) that have begun to circulate in the transgender community, such as zhe, hir, grrrl, boi, and hiz. This paper covers the issues surrounding the gender binary in the structure of the English language. My research questions focus specifically on the perception and performance of gender. I answer some preliminary questions about the potential for a gender-neutral pronoun to gain regular usage. GVN are becoming quite popular in the transgender community. The power of language to alter perception is evident through the use of these new words. GVN have the potential to eradicate the confusion, and in turn the discrimination, that transpeople have to deal with. Many cisgender people have no idea what to call transpeople and resort an automatic monologue about how “he used to be a she,” or some such outing and dehumanizing variation of a pronoun. Language creates reality. Adding gender-variant terms to the English language can give transpeople an opportunity to simply be people. Transpeople have to fight for their right to be taken seriously as human beings. The problems that transpeople face are tremendous. They encompass having parents and family members disown them, not being able to use public bathrooms, having mismatched gender identity and identification, job place discrimination, trouble with health care, names that do not reflect the gender they present in the world, and a slew of other difficulties. This research explores the patterns of GVN use. Through a series of in person interviews I ask questions about he perception of GVN within the transgender community. The potential of GVN to alter the way that gender is perceived and performed is a main focus of my research. Because GVN allow a more fluid approach to gender, they are germane to reevaluating the way society views gender.”
AbstrActs

66

#86  8:45  
Ecological and Cultural Interconnections Between the Guizhou Snub-nosed Monkey (Rhinopithecus brelichi) and Local Communities at Fanjingshan National Nature Reserve, China
Amanda Sheres, Anthropology (M)
Erin Riley, Anthropology

Ethnoprimateology is a field of study which examines human interactions with primates in ecological and cultural contexts. Using this theoretical framework, I examine the extent of overlapping resource use between the Guizhou snub-nosed monkey (Rhinopithecus brelichi) and human residents in the village of Lengjiaba in the Fanjingshan National Nature Reserve (FNNR), China. I also explore residents’ attitudes towards R. brelichi, the FNNR, and resource use. Endemic to the FNNR, the total estimated population size of R. brelichi is 750 to 800 individuals. The 2008 IUCN Redlist lists them as “Endangered” and they have the level of “First Class” protection in China. According to the literature, the primary threat to their survival is the anthropogenic destruction and fragmentation of forest habitat within the core and buffer zones of the FNNR. Human residents of the FNNR collect forest resources for the production of charcoal, firewood, medicinal herbs, and local consumption. Some of the items collected by people may be important seasonal resources for R. brelichi. The information available about human perceptions of R. brelichi or the amount of resource overlap that exists is scant. Understanding how local people view their surrounding environment and primate species is invaluable to conservation. This study examines these topics as well as the potential conservation concerns for resource overlap between R. brelichi and the people living in the FNNR.

#85  8:30  
Island Gardens in a Sea of Instability: Crop Choice, Decision-Making, and Environmental Uncertainties in the Western Solomon Islands
Douglas La Rose, Applied Anthropology (M)
Matthew Lauer, Anthropology

This presentation examines crop choice and decision-making among the horticultural-fishing people of Simbo Island in the western Solomon Islands. Based on five weeks of survey, environmental, and ethnographic research it will explore how crop choices are influenced by perceived changes in the environment or the anticipation of future weather perturbations (e.g. drought) and natural disasters (e.g. tsunamis, floods). Data show that Simbo Islanders plant higher percentages of manioc and bananas than other crops to insure against future environmental disturbances. This crop choice decision-making represents one element of a highly resilient livelihood system that assumes flux, change, and surprise as inherent elements of the socio-ecological system.

#84  8:15  
What is Industry?: An Analysis of Industrious Activity at the Nate Harrison Historical Archaeology Site
Kristin Tennesen, Anthropology (M)
Seth Mallios, Anthropology

Archaeological research was conducted in order to answer the questions “What is industry?” and “How can it be defined?” in the field of historical archaeology. This was done by analyzing possible industrious activities practiced by Nate Harrison, one of San Diego County’s first African-American pioneers, during his time on Palomar Mountain in the late 1800s and early 1900s. Industry can be seen narrowly as the production of goods for consumption by others. However, when viewed broader, it can be argued that the act of production in itself may be industrious, whether it is for a single person’s consumption, a one-time event, or for a third party. Examples of the potential industrious activities Harrison practiced include keeping pigs, selling horses, and tanning deer hides. The activities were analyzed using historical documents and photographs, the artifact assemblage collected over five years of archaeological excavation, and soil chemistry analysis. This led to an understanding of what constitutes industry, how it is defined in historical archaeology, and ultimately helped to determine whether Nate Harrison practiced industrious activities at his hillside homestead. This type of anthropological analysis is unique since previous scholars have focused only on large scale sites. Evaluating industry from a small-scale, individual perspective will hopefully pave the way for studies at similar archaeological sites throughout the globe.

#87  8:00  
Until Death Do Us Part? Aggression and Mental Health Among Newlywed Mexican-American Couples
Elsa Farias, Psychology (U)
Donna Castaneda, Psychology

Intimate partner violence (IPV) typically begins early in a relationship. Furthermore, married couples are more likely than dating couples to report IPV. Research indicates that IPV in Latina/o heterosexual couples is very common. Among women, those
exposed to IPV had a higher incidence of depression and anxiety. It is known that men’s IPV victimization affects men’s entire existence. Thus, understanding variables related to IPV and its mental health consequences are important to assess early in relationships, especially in understudied populations such as the Mexican-American. The purpose of this study is to determine 1) the prevalence of IPV victimization among newlywed Mexican-American couples and 2) how IPV victimization is related to depression and anxiety. This study utilizes the Actor-Partner Interdependence Model to investigate actor and partner effects of IPV victimization on depression and anxiety. Methods: Sample: 85 Mexican-American couples, married 12 months or less. Materials: Aggression-Subscale Marital Satisfaction Inventory-Revised. Minnesota Multiphasic Personality Inventory-Content Scales. Demographic Questionnaire Procedure: Couples were recruited through the media and in-person solicitation. Each partner participated in a face to face interview. Each participant received $25.00. Results: The prevalence of IPV victimization was 68%. No gender differences were found in IPV victimization, depression, or anxiety. Results indicated significant actor and partner effects, in that husbands’ IPV victimization was significantly related to their own and to their wives’ depression and anxiety. Wives’ IPV victimization was not significantly related to their own or their partner’s depression and anxiety. Discussion: This study highlights that IPV victimization among newlywed Mexican American couples is quite prevalent. This experience does not differ between genders. However, men’s IPV victimization appears to be most problematic for both partners. Such findings suggest that more research should be conducted on men’s IPV victimization and more attention should be directed towards social support available for members of this gender.

#88 8:15
Heather Kennedy, Management (U)
Gangaram Singh, Management

My objective is to examine the causes and possible solutions of high unemployment and underemployment among American military spouses (MDS). After reviewing literature and studies on the military spouse I was able to identify what has lead to low MDS employment satisfaction along with policies and initiatives which have been implemented to mitigate the problem. I will present evidence that the mitigation strategy is not effective, instead military spouse unemployment remains three times higher than the national average and the impact of underemployment looms large on the military family. Building on this information, I then designed and expanded a model which examines this issue from several perspectives: government, society, business, and the military. This model demonstrates the strong interconnection of these four variables to the military spouse employment situation. By using this approach I was able to identify a stigma as a significant factor leading to persistent unemployment and underemployment of the military spouse. I will present my findings and conclude with a strategy that will bring the stakeholders together to amass a campaign to raise awareness of how military spouses can add value to a business and reduce the stigma. A combination of awareness, education, employment programs, and further research can reduce the negative impact the stigma has on the MDS and in turn on the effectiveness of the United States Military.

#89 8:30
Helpless Attributions as a Mediator between Dating Violence Victimization and Depression: Differences by Gender
Jennifer Gomez, Psychology (U)
Audrey Hokoda, Child and Family Development

Dating violence is the physical, sexual, or psychological control of another person in a dating relationship (Wekerle & Wolfe, 1999). Dating violence victimization has been associated with depression, suicidal ideation, and substance use (Ackard & Neumark-Sztainer, 2002; Banyard & Cross, 2008). There are discrepancies in the literature, with some studies finding that females are more likely to be victims of dating violence (Foshee, 1996; Makepeace, 1986), while others have posited that males are more often victims (Harrod, 2001). Helpless attributions (internal-stable-global attributions for negative, uncontrollable events), collectively leads to depression (Peterson, von Baeyer, Abramson, & Seligman, 1982). Depressive disorders occur more often in girls than boys (Wichstrom, 1999). Since there are gender differences in both dating violence victimization and depression, the purpose of this study was to investigate gender differences when helpless attributions is a mediator between dating violence victimization and depression. This study included 353 college students. Each participant anonymously completed an online survey, which included The Attributional Styles Questionnaire (Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982), the Conflict in Adolescent Dating Relationship Inventory (Wolfe, Scott, Reitzel-Jaffe, Wekerle, Grasley, & Pittman, 2001), and the Modified Depression Scale (Orpinas, 1993). Three regressions were run to test for a mediation; the results indicated that the criterion for a partial mediation was met for girls, but not for boys. That is, for girls, dating violence victimization was related to helpless attributions ($\beta = .189, p < .01$), helpless attributions was related to depression ($\beta = .202, p < .01$), and dating violence victimization was related to depression, after controlling for helpless
AbstrActs

#90  8:45

College Students’ Perceptions of Abusive Dating Relationships

Briana Bashaw, Psychology (U)  
Emilio Ulloa, Psychology

Research suggests that between 9% to 57% of high school students experience some form of dating violence (Avery-Leaf, Cascardi, O’Leary, & Cano, 1997; O’Keeffe, Brockopp, & Chew, 1986). McLaughlin, Leonard, and Senchak (1992) suggest that domestic violence may have been learned during dating interactions making intervention for adolescents and young adults extremely important. The purpose of this study is to gain an improved understanding of college students’ beliefs about dating interactions, especially unhealthy and harmful behaviors, using student’s self-reported responses to various dating scenarios. It is hypothesized that when participants read a scenario that describes an episode of physical and verbal abuse they should suggest that the victim leave the abusive relationship at higher rates then when the scenario does not contain physical and verbal abuse. It is also hypothesized that scenarios that contain both warning signs (high levels of jealousy and controlling behavior) and physical and verbal abuse will have the highest levels of participants suggesting the victim should leave the abusive relationship compared to the remaining three scenarios. Participants from psychology and child and family development classes earned extra credit by reading one of the four scenarios and responded in an open-ended format with their thoughts and feelings about the dating interaction that they read. The qualitative responses were then coded by a team of researcher assistants. An ANOVA will be run on the resulting data and will be discussed. The implications for professionals who work with individuals and couples in the abusive relationships will also be discussed.

#91  9:00

Linking Sibling Abuse, Depression, and Victimization of Dating Violence: A Pathway Analysis

Miguel Martin Del Campo, Psychology (U)  
Emilio Ulloa, Psychology

Abuse by family members has been associated with many negative outcomes. However, the existing literature largely ignores sibling abuse and focuses on parental abuse. In fact, according to Waldinger, Vaillant, & Orav (2007) abuse by siblings may be a more significant predictor of depression than abuse by parents. The authors further found that the negative effects of sibling abuse during childhood can last well into adulthood. Depression has also been associated with other negative outcomes such as victimization of dating violence. A substantial amount of the literature focuses on depression as an outcome of experiencing violence, although evidence is also emerging that depression can lead to higher rates of victimization of abuse. The current study examines the effects of abuse by siblings on depression, and depression on victimization of dating violence. It is hypothesized that sibling abuse will have an indirect effect on dating violence victimization via depressive symptoms. Two hundred-sixteen middle and high school students were administered paper surveys during 30 minute classroom sessions while three hundred-fourteen college students responded via an online computer system. Participants ranged in age from 12 to 24 years old with a mean age of 17.54 (SD = 2.62) years. Two regression analyses were conducted to determine the relationships between sibling abuse and depression, and depressive symptoms and victimization of dating violence. Results revealed that sibling violence significantly predicts depressive symptoms, β = .20, p < .001 and that depressive symptoms significantly predict victimization of dating violence, β = .56, p < .001. A Sobel’s test was also conducted to determine the indirect effect of sibling abuse to dating violence victimization through depressive symptoms yielded the significant result, z = 3.25, p < .01. The results support the hypothesis and indicate that sibling abuse should be considered more seriously than in the past. Further research should focus on how sibling abuse, depression, and dating violence victimization influence each other and possible forms of intervention.
**#93 8:00**

*Electrochemical Studies of the Roles of Hydrogen Bonding and Proton Transfer in the Non-Aqueous Redox Chemistry of p-phenylenediamines*

Laurie Clare, Chemistry (U)
Diane Smith, Chemistry

Cyclic voltammograms (CV) of 2,3,5,6-tetramethyl-1,4-phenylenediamine (H2PD) show two separate current peaks that correspond to the generation of a singly oxidized radical cation and then at a further positive potential, a doubly oxidized species, quinone diimine. It is believed that as H2PD changes oxidation states, the amine hydrogens can affect oxidation potentials by becoming more acidic thus contributing to stronger hydrogen bonding with the possibility of proton transfer. In order to study this process of H2PD as it changes oxidation states, CV studies were conducted with H2PD in the presence of three bases of different strengths. Dimethyl Formamide (DMF) and 1,4-Dimethylpiperazine-2,3-dione (PZD) both have an aqueous pKa of 2 and Pyridine has an aqueous pKa of 5.1. With the addition of these bases, CV scans at the first oxidation potential show little deviation from what is seen with H2PD alone, but at the second oxidation, the current peaks move to a less positive potential. As base concentrations increase this trend continues, more so with PZD and Pyridine. Their current peaks show the second oxidation potential merging with the first. It is thought that with the addition of bases the CV scans still correspond to an overall H2PD 2 e- redox system but the question is does the second potential move less positive because of hydrogen bonding or could there be proton transfer?.

Turning to UV-Vis Spectroscopy in conjunction with CV scans, spectra was taken at both oxidation potentials. Based on these UV-Vis studies we believe that the major second oxidation product for DMF is the hydrogen bonded DMF to doubly oxidized H2PD, the major project for PZD is the doubly oxidized singly deprotonated species and with Pyridine the major product is a combination of singly and doubly deprotonated doubly oxidized species.
#96 8:45

Synthesis, Optical Properties, and Surface Modification of Magic-size Nanocrystals of II-VI Semiconductors

Ke Gong, Chemistry (M)  
Gregory Kalyuzhny, Chemistry

We have developed novel synthetic methods which create highly monodisperse magic size ZnSe and ZnTe nanowires (MSNWs). Key factors for synthetic success included correct precursors (Zn carboxylates of moderate chain length), low temperature (110-150°C), long reaction times (hours to days) and optimized ligand/solvent environment. These factors caused precipitation of the final products which were found to be the ZnSe and ZnTe MSNWs. These MSNWs exhibit narrow absorbance along with luminescence peaks which are blue-shifted compared to previously known synthetic routes to ZnSe and ZnTe nanomaterials. Since the MSNWs are highly monodisperse, they form super-lattices detected with TEM and XRD. Lattice structure and possible stoichiometry of these materials are thoroughly discussed. We also showed for the first time, the ability to transfer ultrasmall CdSe, CdTe, CdS, ZnSe, and ZnTe nanomaterials from non-polar to polar solvents by ligand exchange reactions with a new ethyleneglicol based ligand. During the transfer these nanomaterials retain mono-dispersity and most of their emission properties.

#95 8:30

Extraction of Compounds and Investigation of Bioactivities from Mallotus Macroystachyus: Cytotoxicity and Anti-HIV-1

Octavio Romo-Fewell, Chemistry (U)  
John Love, Chemistry and Biochemistry

Mallotus Macroystachyus is a tree up to 13 meters tall approximately and 20 centimeters diameter at breast height. It is found up to approximately 1000 m altitude in disturbed sites in primary forest. The specimen investigated was collected on December 11, 2008 in Nongkhai province in the northeastern part of Thailand. The collected specimen of the twigs and leaves parts of Mallotus Macroystachyus was air-dried and finely powdered, and was subjected to repeated sequential percolation by solvents with different polarities (hexane, ethyl acetate, and methanol) for compound extraction purposes. A known flavanoid, 5,4' dihydroxy-3,7-dimethoxyflavone was successfully isolated from the leaves and twigs of Mallotus Macroystachyus. The crude ethyl acetate extract of the plant exhibited cytotoxicity against two mammalian cancer cell lines, the murine lymphocytic leukemia (P-388) and the human nasopharyngeal carcinoma (KB) with the ED50 value of 7.86 and 16.01 µg/mL respectively. It also exhibited anti-HIV-1 activity in the anti-syncytium assay (active) and the HIV-1 reverse transcriptase (RT) assay (weakly active).

#94 8:15

Ampholyte Free Capillary Isoelectric Focusing

Mohammad Hadayat, Biology (U)  
Chris Harrison, Chemistry

Capillary isoelectric focusing (cIEF) permits rapid, high resolution, separation of a vast array of proteins, based on the differences in their isoelectric point. Traditionally, cIEF calls for a pH gradient to be formed from a mixture of ampholytes. To this end the capillary is filled with a solution of the ampholytes of different pls, mixed within the protein sample. The applied electric field mobilizes the ampholytes and proteins; creating a pH gradient which immobilizes the proteins and ampholytes when they reach the pH of their isoelectric point. Due to the high cost of ampholytes, our goal is to develop a method of cIEF devoid of ampholytes for the formation of the pH gradient; this will not only make it more affordable but also simplify the process. Our approach is to use of a discontinuous buffer which will yield a pH gradient within a capillary that has a highly suppressed electroosmotic flow. With an acid buffer at the capillary inlet and a mixed base buffer in the capillary and outlet we can generate a desired pH gradient down the length of the capillary to be used for cIEF separations of proteins.

#97 9:00

Porous Metal-Organic Frameworks Constructed from a Tetrakis (4-carboxyphenyl) Porphyrin (TCPP) Building Block

Derek Butler, Chemistry (D)  
Laurence Beauvais, Chemistry/Biochemistry

Materials containing coordinatively unsaturated metal centers are ideal for use in a myriad of applications from gas storage to catalysis. However, methods for the preparation of these materials are still being developed. The development of metal-organic frameworks has created burgeoning interest in this field. One approach is to use building blocks containing two distinct metal binding sites–structural and functional–such as tetra(p-carboxyphenyl) porphyrin (TCPP). The structural metal binding sites will be used to construct MOF’s. The functional metal site, the porphryin ring itself, will impart the desired functionality. By choosing metal ions such that one favors binding at the structural site as compared to the functional site, several solids with the same overall structure can be made that differ as to what metal ion is positioned in the functional site, thus changing the reactivity of each solid while retaining the overall solid structure.
#98 9:15

**Ultrasonic Nonlinear Laser Wave-Mixing Spectroscopic Detection of Chem/Bio Agent**

Marc Gregerson, Chemistry (D)
William Tong, Chemistry

Nonlinear multi-photon wave-mixing spectroscopy is presented as an ultrasensitive “absorption” detection technique for a variety of compounds in liquid- and solid-phase samples. Wave mixing is an optical absorption-based method that has several inherent advantages including excellent sensitivity, small sample requirements, short optical path length and high spatial resolution. Since wave mixing can be used for both fluorescent and non-fluorescent analytes, one can detect chemicals in their native form without the use of tags and labels. Hence, it is a versatile method for the analyses of proteins, small organics and molecular gases. The laser excitation wavelength used in a wave mixing setup closely matches the absorption maxima of the analyte of interest. Wave mixing can be easily coupled to popular systems including chromatography, capillary electrophoresis and other capillary-flow and gas-injection systems, especially for trace-concentration analysis of chem/bio agents. The wave-mixing signal is generated almost instantaneously as the two input beams intersect in the analyte of interest and the signal has the same optical characteristics of the incident coherent laser beams. Hence, optical signal collection is efficient and simple. Unique wave-mixing nonlinear properties offer effective standoff detection capabilities with excellent detection sensitivity levels.

#100 8:15

**Evidence of a Propagating Breakage Front in Granular Materials Loaded Uniaxially**

Johan Gallay, Civil Engineering (M)
Julio Valdes, Civil and Environmental Engineering

In this study, particle image velocimetry (PIV) is used to (1) identify the formation and (2) track the movement of a particulate breakage front that is generated inside a constrained, loaded granular pack located inside a custom-made transparent cell. Results indicate that the front propagates back and forth in the axis of loading, yet does so faster than the applied deformation rate. The PIV data is obtained from high-definition footage taken during each experiment, and is used to accurately pinpoint the location of the breakage front at all times. Analysis indicate that the mechanics of breakage front propagation are rooted in the physics of stick-slip.

#101 8:30

**Stress Relaxation in Heterogeneous Sand**

Arce Doble, Civil Engineering (M)
Julio Valdes, Civil and Environmental Engineering

Long term soil deformations associated with Civil Engineering works can be attributed to time-dependent processes, e.g. creep and stress relaxation. Although it is well known that all soils exhibit rheological behavior, most previous studies on time-dependent behavior focus primarily on clayey soils. There are few investigations that center on stress relaxation in granular materials, and studies that relate the effects of mineral composition on stress relaxation are non-existent. This research aims to contribute toward an improved understanding of the time-dependent behavior of sands with experiments of stress relaxation of heterogeneous sand mixtures prepared in the laboratory and loaded in one-dimensional compression. The relationship of maximum imposed compressive stress and final post-relaxation stress, as well as relaxation rates, are documented and compared for specimens with varying degrees of mineral heterogeneity. Acoustic emission data obtained during the compression of specimens provide complementary information.
**Session A-18**

**Oral Presentation: Ethics and Justice**

**Friday, March 5, 2010, 10:00 am**

**Location: Calmecac**

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**#102 8:45**

*Seismic Analysis of Sedimentation and Deformation of Ellesmerian Strata, Umiat Basin, Alaska North Slope: Evidence for Carboniferous Wrench Faulting*

Bryant Fulk, Geological Sciences (M)
Rob Mellors, Geological Sciences

Abstract: Reprocessed data from the USGS allows more detailed interpretation of previously overlooked features within Ellesmerian Strata of the Umiat basin, in the foothills of the central NPRA. Strata deposited on, what was previously classified as a passive shelf margin, display compressional stress related structures and deformation. By interpreting the basin through different stages of evolution (via flattening on well defined horizons), a relative age range may be constrained for this shift in stress regime change. Furthermore, previous work done on the Inigok 1 well core allows absolute ages to be determined. Basin reconstruction analysis reveals that the basin shifted from a gravity driven extensional regime to a transpressional strike-slip related stress regime from the Pennsylvanian to the Cisuralian. This may be related to adjacent tectonic events elucidated only in the last several years.

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**#103 9:00**

*Monitoring the Oedometric Compression of Sands with Acoustic Emissions*

Fabio Fernandes, Geotechnical (M)
Julio Valdes, Civil and Environmental Engineering

This research documents the development and use of a noninvasive technique to monitor the acoustic emissions (AE) generated during the oedometric compression of coarse grained soil. Technique implementation is described with the aid of experiments conducted on sands with contrasting grain features. Results indicate that the proposed technique is capable of capturing the onset of characteristic stress-strain behavior regimes exhibited by the soil during loading. The clarity of such capture is, however, dependent on the amplitude of the AE relative to that of the background noise, and as such, dependent on the soil type. The technique is anticipated to aid in enhancing the fundamental study of soil behavior at high stresses and may find potential use in the realm of penetrometer-based stratigraphy characterization.

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**#104 10:00**

*Refrigerators: Unexpected Figurations of Power and Oppression*

Carmen Rodriguez, Women’s Studies (U)
Irene Lara, Women’s Studies

Frigidaire Refrigerators are a major appliance mostly found in what has been constructed in western patriarchal culture as a proper and safe female realm, the kitchen. In this paper, I draw on feminist scientist Donna Haraway’s assertion that “…social constructions and practices of technology… have a direct effect on our own physical selves” (Haraway, 1997, p. 130). I use her model of “stem cells [and] sticky threads” (Haraway, 1997, p. 129) to present many of the linkages of power and oppression that exist between refrigerators and the female body. Applying feminist analysis into the understanding of the impact of manufacturing these refrigerators and their sale in the U.S. entails examining how the race, class, gender and geographical locations of women relate to their oppression by said refrigerator manufacturing and their consequent sale. As I show, these links result in negative outcomes for the body/mind/spirits of women. For example; the femicides in Juarez, Mexico, and the feminization of poverty in Mexico and the U.S. entails examining how the race, class, gender and geographical locations of women relate to their oppression by said refrigerator manufacturing and their consequent sale.

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**#105 10:15**

*Metales y Derivados: Women’s Transnational Mobilization for Environmental Justice*

Carolina Prado, Women’s Studies/ Sustainability and Environmental Studies (U)
Irene Lara, Women’s Studies

Metales y Derivados was an abandoned battery recycling plant in Tijuana, B.C. creating toxic runoff into the community of Colonia Chilpancingo. Beginning in 1998, women from this community, with binational support, pressured both the Mexican and U.S. governments to take care of this health risk until the eventual clean up was completed in 2008. Building on Dr. Joe Bandy’s work on activism in the San Diego- Tijuana region, this research
analyzes the complex politics involved with mobilizing a transnational response to this environmental justice case and the significance of this victory for an otherwise politically marginalized community in the Global South. My research aims to examine the implications of this case as a model for pressuring the United States to become more accountable for its role in contributing to the environmental costs involved with corporate outsourcing. Multinational corporations have, since the implementation of NAFTA, increased their manufacturing operations overseas due to cheap labor and less strict environmental laws. My project is realized through interviews with women from Colectivo Chilpancingo Pro Justicia Ambiental, the grassroots environmental collective created from this struggle, and a review of texts analyzing women's transnational activism. In conclusion, I will be drawing upon a feminist action research method to propose this case as an example for further transnational activism.

#106 10:30

Excessively Manipulated: Cornrows in the Courtroom

Kimberly Burke, Women's Studies (M)
Irene Lara, Women's Studies

“Hair seems to be such a little thing. Yet it is the little things, the small everyday realities of life, that reveal the deepest meanings and values of a culture, give legal theory its grounding, and test its legitimacy” (Caldwell 370). This paper is an analysis of the court transcripts of Mr. Gbajabiamila’s suit against Abercrombie and Fitch, Inc. through the California Department of Fair Employment and Housing. Gbajabiamila was terminated from Abercrombie Company’s Hollister branch for wearing cornrows. I am approaching this project from a postmodernist viewpoint that our conceptions of the world are always mediated through everyday realities, that reveal the deepest meanings’ and the contradiction revealed within their articulations” (Rodríguez 7). The court transcript represents a discourse through which “subjects are continually involved in negotiating the accumulated narratives of identity that circulate within these localized ‘horizons of meanings’ and the contradiction revealed within their articulations” (Rodríguez 7). This chapter draws on feminist legal theory and critical race theory to explore the intersections of race and gender within Gbajabiamila’s trial. I highlight past court cases dealing with black hair in the workplace, such as Rogers v American Airlines, and situate Abercrombie’s defense within the historical treatment of blacks in the US justice system. I find that the defense employs several strategies historically used to justify racist and discriminatory laws. I address significant implications the strategies and findings of this case have for social and cultural meanings of race and gender. Caldwell, Paulette. “Hair Piece: Perspectives on the Intersection of Race and Gender” Duke Law Journal 1991.2 (April, 1991):356-396. Rodríguez, Juana Maria. Queer Latinidad: Identity Practices Discursive Spaces. New York: New York University Press, 2003.

#107 10:45

Facing the Animal: The Place of Animals in Levinas

Aaron Elliott, Philosophy (M)
Mark Wheeler, Philosophy

The ethical system of Emanuel Levinas is centered on the Other. It is an ethics of welcoming the stranger. The system is not be generalized; it can only be experienced, and therefore can only be talked about, from the first person perspective. The Other gives me the world through the objectivity of language and also requires that I give the world to her, as the responsibility imposed by the face. The Other, through his face, questions my right to live a life that prioritizes my interest over his. A first reading of his ethics seems to suggest that Levinas denies a place to non-human animals. Peter Singer objects that this sort of practice, common to ethical theory in philosophy, is speciesist. Singer follows utilitarian Jeremy Bentham in holding that regarding ethical consideration “the question is not, Can they reason? nor Can they talk? but Can they suffer? Because this is an particularly penetrating criticism for a philosophy of welcome, the charge of speciesism requires a closer examination of how animals might fit into the system Levinas described. Attempting to include animals directly into the analysis of the Other and the face yields an inconsistent position, one that cannot fully escape the charge of speciesism. Attempting to demonstrate an obligation to animals distinct from the responsibilities of the ethical relationship with the Other similarly fails, on the grounds that it do not prevent the preference of human interests over those of other animals. A final attempt at reconciliation, the idea that animals who suffer have an impure version of the Levinasian face, allowed the interpretation that the priority of the human ethical relation is a temporal priority, not an ethical priority. Since ethical priority of humans over animals is the position Singer calls speciesist, we find an avenue of interpretation that does not permit such accusations.

#108 11:00

The Rhythm of the Revolution

Cristina Dominguez, Women’s Studies (M)
Elizabeth Colwill, Women’s Studies

My research project explores the feminist poetry movement and the ways in which it both fueled the larger women’s liberation movement of the 1970s as well as became a movement in its own right. More specifically through the examination of three poets in particular I seek to understand how their pieces both exemplified and expanded the feminist mantra ‘the personal is political’. I argue that the work of these poets, Judy Grahn,
Adrienne Rich, and Audre Lorde, not only furthered the feminist movement by speaking to women in the United States calling them to be involved, but also challenged those in the movement calling them to re-envision and recreate the personal and thus the political. Inspired by the ability of these poet-activists to transform and transgress the women’s movement I completed my own poetry, reflecting similar themes and styles present in the work of these great poets. In conclusion, through looking at movement, the poets, and their works as well as through completing my own work I wish to see how the arts propel the understanding of the lived experiences of individual women as well as individual and collective feminist political activism.

#109 11:15
The Spirit of Houston: Processes of Inclusion
Jessica Nare, Women’s Studies (M)
Doreen Mattingly, Women’s Studies

The Spirit of Houston: Processes of Inclusion International Women’s Year (IWY) was the first federally funded women’s conference and the largest gathering of women in United States history. IWY consisted of local conferences held in every U.S. state and territory, which culminated in a national conference held in Houston, Texas in November of 1977. Overall, 130,000 women and men participated in the state and national conferences. This paper uses Margaret “Midge” Costanza’s personal papers from the White House to analyze the unique and collaborative organization of the IWY conferences. IWY is particularly important because the conferences successfully garnered the representation of women from diverse races, ethnicities, religions, classes, ages, ability levels and educational backgrounds. The conference’s organization, which utilized both bureaucratic and grassroots elements, effectively included a diverse range of women into the conferences. Typical accounts of Second Wave feminism create clear distinctions in movement. Specifically, scholarly works delineate between “radical” feminist movements and “liberal” feminist movements. However, IWY contained elements of multiple movements. Because IWY occurred at the pique of the feminist movement, the conferences provide insights into the priorities and goals of Second Wave feminism. IWY blurred the lines between radical and liberal feminisms ultimately complicating normative narratives of this period. The conferences demonstrate close collaboration between different groups of women. Therefore, as the feminism continues to diversify, IWY provides a rich, historical example of how varied groups of women can achieve degrees of solidarity on a national level.

Session A-19
Oral Presentation: Biology of Disease
Friday, March 5, 2010, 10:00 am
Location: Casa Real

#111 10:00
A Molecular Time Clock Approach for Calculating Coxsackievirus Replication Rates During Persistence in the Heart
Uzoagu Okonkwo, Biochemistry (U)
Ralph Feuer, Biology

Coxsackievirus B (CVB) infection in the human host may lead to acute and chronic myocarditis. A substantial number of patients suffering from chronic myocarditis will eventually develop dilated cardiomyopathy, a condition underlying almost half of all heart transplants. Existing evidence favors a role of persistent CVB in contributing to the chronic phase of disease, and non-cytolytic variants have recently been described in the literature. It remains unclear what regulates the switch from acute to persistent infection, and whether CVB3 persistence is distinguished by chronic infection or sporadic viral replication/latency. We have utilized the inherent instability of our recombinant coxsackievirus expressing the enhanced green fluorescent protein (eGFP-CVB3) to determine whether virus persists in the heart through chronic viral replication or through sporadic viral replication/latency. Our recombinant coxsackievirus expresses eGFP up to passage five in tissue culture, during which the foreign insert is gradually deleted from viral population in a reproducible manner. The stability of eGFP-CVB3 genome was characterized in the heart using two contrasting mouse models, BALB/c and B cell knockout (BcKO) mice. BALB/c mice harbor viral RNA in the heart during the persistent stage of infection, although no viral titers by plaque assay were observed. Conversely, BcKO mice suffer from chronic infection, in which infectious virus was present for extended periods of time presumably due to the lack of a neutralizing antibody response. We tested the ability of both mouse models for their ability to retain the eGFP insert over the course of acute infection, and into the persistent phase of infection. Molecular analysis of the recombinant viral genome revealed a stepwise pattern of deletions in both the pancreas and heart of either mouse model with accelerated deletions occurring within BALB/c mice. The accelerated eGFP decay rate in BALB/c mice compared to BcKO mice may reflect the need for CVB3 to target B cells for efficient virus spread and maximal viral replication rates during acute infection. Intriguingly, our latest results utilizing this technique...
suggest that virus persistence may be established at a very early stage following infection. Our continued molecular analysis of deleted eGFP-CVB3 variant kinetics will assist in evaluating virus replication rates in vivo, specifically within the heart. These studies may eventually help in devising relevant antiviral strategies for patients, particularly during the persistent stage of CVB3 infection.

#112 10:15

**Immune Infiltration and Racial Disparities in Colon Cancer**

Angelique Hill, Cell and Molecular Biology (U)
Kathleen McGuire, Biology

Colon cancer (CC) represents the third highest cause of cancer mortality in the United States. However, incidence and mortality rates due to CRC in African Americans are greater than those in Caucasians, the cause of which is not totally understood. There are two distinct genetic mechanisms of disease development in CRC. Patients with tumors caused by mismatch repair defects, leading to microsatellite instability (MSI), generally have a better prognosis than individuals with tumors caused by chromosomal instability (CIN). In addition, high CD8+ T cell infiltration in the tumor epithelium is associated with MSI and better prognosis. While the mechanism of this response is unknown, it is a better predictor of survival than current clinical parameters. This study aims to determine if the prognostic disparities observed in race is due in part to differences in immune response. Formalin-fixed paraffin-embedded colon tumor slides from 503 patients were obtained from the North Carolina Colon Cancer Study (NCCCS), a population-based cohort. 45% of these patients were African American and 55% were Caucasian. The MSI status of each patient was previously established and it has been shown that MSI tumors are half as frequent in African Americans as in Caucasians (Carethers et al., unpublished). This could, at least in part, help explain why the disease is more aggressive in blacks. Immunohistochemistry (IHC) is being utilized to visualize CD8+ cells present in the sample. To quantify the CD8+ cell intratumoral immune response, a comparative count of cells in the tumor epithelium is provided by a count of three high-powered field photographs in a blind study. Thus far, tumors from 325 patients have been analyzed. The top quartile of these tumors, defined as those with high infiltration, was unblinded for this report. 51.4% of MSI tumors fall in this quartile, but only 21.9% of CIN tumors. Further statistical analysis will be conducted upon completion of all samples. Our current observations, combined with the fact that MSI tumors are less common in blacks, suggest that perhaps the disparity may partially be due to lower immune responses to CC in African American patients.

#113 10:30

**Hypoxic Pulmonary Vasoconstriction is not Attenuated by Allicin in Healthy Volunteers**

Keaton Lesnik, Microbiology (U)
David Lipson, Biology

High Altitude Pulmonary Edema (HAPE) is a potentially fatal altitude illness occurring unpredictably in approximately 1-10% of individuals ascending above 2500m. Excessive pulmonary artery vasoconstriction in response to hypoxia has been implicated in the pathogenesis of HAPE. Subjects were enrolled in a placebo-controlled, double blind trial of oral allicin, one of the active compounds of garlic, to gauge the potential in ameliorating the magnitude of pulmonary artery hypertension associated with acute hypoxia. In phase one of the study subjects were given a one time dose of 1400mg of allicin, while during phase two subjects were given a ten day load of 1400mg of allicin per day. To induce hypoxic vasoconstriction subjects inspired 11% oxygen over 10-15 minutes. Pulmonary artery pressures were then measured using trans-thoracic 2-D echocardiography. There was no significant difference noted in the effectiveness of allicin in attenuating hypoxic pulmonary vasoconstriction.

#114 10:45

**CNS Developmental Defects Following Recovery from Enterovirus Infection During the Neonatal Period**

Sonia Maciejewski, Microbiology (U)
Ralph Feuer, Biology

Coxsackievirus, a member of the Picornavirus family and the Enterovirus genera, is a significant pathogen of the neonatal central nervous system (CNS). Despite major tropism of the brain, many studies failed to investigate the long term consequences of coxsackievirus infection in the CNS. By utilizing a neonatal mouse model of coxsackievirus B3 (CVB3) infection, we evaluated developmental complications in the CNS following infection. Three day old mice were infected intra-cranially with a recombinant CVB3 expressing eGFP, and CNS pathology was characterized by...
The Association between Socioeconomic Status, Income Tax Compliance and Remitting among Brazilian Migrants in Metropolitan Boston

Betsy Lee, Mathematics Single Subject Teaching (U)
Enrico Marcelli, Sociology

Studies have shown that the remittance flows to Latin America have increased twenty-fold since 1980. In 2004, the Latin American region received 27 percent, an equivalency of US$40 billion, of all remittances to developing countries. Although such flows have prompted research regarding the relationship between migrants in the United States and remitting, few studies have investigated how socioeconomic status in the United States and remitting are linked. This article utilizes 2007 Boston Metropolitan Immigrant Health and Legal Status Survey (BM-IHLSS) data to investigate how socioeconomic status and paying income taxes among Brazilian migrants influenced the amount of remittances sent back home during the year prior to being interviewed. Specifically, we estimate how much was remitted is associated with educational attainment, occupational status and individual income – as well as having paid income taxes in 2006 – controlling for total household income, household size and child dependency, health insurance, and various demographic characteristics such as age, sex and skin color. Results suggest that fully 69 percent of all Brazilian adults sent money to their family or friends – and that remitters were less likely to have been graduated from college, to have been working in a “white collar” job, to have been earning a higher income and to have filed a tax return in 2006. Although we find no evidence that tax compliance influenced having remitted, we estimate that males were more likely than females and those earning a higher income were less likely. These results provide limited support for the notion that integration in the United States is negatively associated with remitting.
**#116 10:15**

**Concrete Column Tolerance Statistical Evaluation**  
Robert Carr, Statistics (M)  
Colin Milburg, Mathematics and Statistics

Efficient concrete building construction requires defined construction tolerances. Concrete tolerance research has a stated goal of generating a “preliminary measurement protocol using more common measurement tools” for the collection of data on orientation, form, and location variations of common concrete elements such as footings, floors, columns, walls, and beams. This initial research phase is designed to support the efforts of the American Concrete Institute (ACI) committee to, (1) create updated ACI design standards that are unambiguous and reflect construction process capabilities, and (2) establish a new standard document on measurement protocol for inspecting the tolerances that incorporates an understanding of statistical variability. The stated goal of this study is to use column surface “cloud” data collected using 3D laser scanning technology, to transform this “cloud” data into a format convenient for statistical analysis, and to analyze this data to develop a measurement protocol for evaluating geometric variation within the range of industry tolerances. Data evaluation first involves orientation, transformation and visualization. Next, multiple linear regression of the cloud showed strong linear behavior. However, as expected given deflection within concrete formwork, nonnormality was confirmed for the surface residuals, necessitating the use of nonparametric methods to establish a recommended sample size. The nonparametric bootstrap procedure is used for all detailed statistical analysis after confirmation of nonnormality. Using the bootstrap nonparametric procedure, confidence intervals for sample sizes of 30 and 300 are evaluated. Multiple linear regression of surface data provides an accurate measure of orientation tolerance with sample size 30 results consistent with the full 3000 data points. These small confidence interval lengths indicate that sample size of 30 produces reasonable results for assessing location tolerances as well. Thus, a 30 point random sampling protocol is recommended. However, discussions with industry professionals indicate, that collecting 30 points per surface is cost prohibitive. As such the authors are now investing the potential for reduced sample sizes of approximately 10 to 15 points distributed across the surface by regions instead of randomly.

**#117 10:30**

**Nonparametric Bayesian Modeling of Scaled Item Response Data**  
Jose Fuentes, Statistics (M)  
Kristin Duncan, Mathematics and Statistics

Item response theory (IRT) models the relationship between individuals’ unobservable latent trait or ability levels and their responses to items on a test or questionnaire. Understanding the characteristics of questionnaire items such as how well they discriminate between low and high trait subjects allows us to construct better tests and to obtain better estimates of subjects’ trait values. Nonparametric Bayesian methods have recently been applied to dichotomous item response data by using Dirichlet process priors to model the item characteristic curve. We extend this model to scaled response using an adaptation of the Graded Response Model. This extension is nontrivial because the dichotomous model deals only with monotone item response functions while adding more response options produces item response functions that are non-monotone.

**#118 10:45**

**Multivariate Nonparametric Techniques for Nonlinear Model Diagnostics**  
Craig Massey, Computational Statistics (D)  
Barbara Bailey, Mathematics and Statistics

Due to the straightforward construct and applicable interpretative abilities, linear models have traditionally been the primary tool for modeling processes in science and engineering. However, in most real world applications, phenomena are nonlinear and the general linear model can become insufficient. Compared to direct analytical generation in linear models, nonlinear models are inherently more complex. Iterative optimization methods are required to generate estimates of the unknown set of parameters. The model is evaluated by the residual sum of squares, a measure of overall model error as the model takes shape. In this research, we will implement/propose nonparametric techniques to monitor the efficiency of nonlinear model development. Due to its iterative nature, information about the residual sum of squares is unknown at model inception. The traditional assumption of normality on the distribution of the model error terms can be used to construct joint confidence regions for the nonlinear model parameters. However, model validity may become uncertain if a priori knowledge of this assumption is unknown. As a result, we propose
nonparametric diagnostics to provide a more general method of analysis where assumptions about variable distributions can be relaxed. In this analysis, we will compare traditional parametric methods for diagnostics to our proposed nonparametric diagnostics for two datasets. The first dataset is artificial and will be used solely for illustrative purposes. The second dataset comes from a real-life non-linear model, and will be used to investigate the applicability of the diagnostics discussed above. Further research in this area includes dimensionality reduction for models with a large number of parameters. The ultimate goal of this research is to provide software in the R-environment (a free statistical programming language) that will produce diagnostic plots that will allow the user to investigate the evolution of fitting a nonlinear model via the model’s iterative residual sum of squares.

#120 10:00

**Duality Makes My Head Hurt: An Exposition of Viscountess Anne Conway**

Jessica Hamilton, Philosophy (U)

Steven Barbone, Philosophy

Life is not painless or perfect for any of us, and Anne Conway (1631-1679)—a little known philosopher who suffered and eventually died from migraines—is no exception. We all have issues. At the same time, it is possible for us to conceive of utter tranquility and perfect health, of divinity. We are probably all familiar with this chasm between what we desire or idealize, and what we actually experience. As students of philosophy we may concede to label this chasm as duality. Our desires, beliefs, and conceptions of truth can be articulated as the “World of Forms,” ideas, the One, Brahman, spirit, etc., while reality can be deemed the “World of Becoming,” change, the many, Atman, matter, etc. While some philosophers bravely propose that reality is truly all one thing, it is objected that this fails to explain the myriad of different things that we observe. Philosophers like Aristotle explain the physical world in terms of a dynamic relationship between potentiality reaching its actuality—an effort to depict both the connectivity and plurality of life—yet Aristotle’s Unmoved Mover remains a truly immutable ideal. So how can this gap between perfection and imperfection be bridged? In my research I have found the dualist problem arise in many different philosophies both Eastern and Western. It is up for debate whether any of the “dualist solutions” that I have found are truly solutions. After all, philosophers are lovers of wisdom, not of dogma. What is pointed out specifically by Anne Conway, however, is that it is the very act of realizing our place within the two extremes of reality that brings relief. Through my independent study of her work, I have found Conway’s ideas to be an important contribution to the problem of duality and to the history of philosophy. When the pangs of life set in, it’s precisely the disparity between the real and the ideal which can set us free. My research as revealed Anne Conway’s antidote: embrace and endure your pain, for it is through you that reality endures.
#122 10:30

**A Philosophical Endeavor into a Female Philosopher**

Karl Kyler, Philosophy (U)
Steve Barbone, Philosophy

Throughout all of history the world of philosophy has been plagued with the biased viewpoint of only the male perspective. It is unfortunate that this injustice to the field has gone so long unnoticed. In “A Philosophical Endeavor Into Damaris Masham”, I set out to acknowledge the philosophical value Damaris Masham brings forth in her book, *A Discourse Concerning the Love of God*.

#123 See Session B-20

#124 10:45

**Charles S. Peirce’s Idea of Evolutionary Love**

Tim Sparks, Philosophy (M)
Mark Wheeler, Philosophy

This presentation will explore the ramifications Peirce’s essay *Evolutionary Love* on the current debate concerning moral progress as well as God’s existence. I will argue that moral progress is only possible given a moral ideal such as love. Further, the moral ideal of love tends to presuppose a deity of some sort.

Session A-22

Oral Presentation: Urban Planning
Friday, March 5, 2010, 10:00 am
Location: Presidential Suite

#125 10:00

**Coloring the City: Race, Renewal, and the Interstate in East St. Louis, Illinois, 1958-1971**

Michael Brickey, History (M)
Andrew Wiese, History

The City of East St. Louis, Illinois in the 1960s offers an opportunity to understand how space becomes racialized. This historical presentation will explore the political and social struggle for civil rights alongside urban planning and renewal efforts in order to reveal how urban space was integral to the local incarnation of the African American struggle for racial justice. It was interstate construction that politically emboldened East St. Louis African Americans around spatial issues. They fought against other land clearing urban renewal efforts and sought a more incremental, targeted, and community-directed approach to redevelopment. The decision to build an interstate through East St. Louis initiated a threefold process of demographic transformation, political mobilization, and economic decline, which resulted in the racialization of East St. Louis space. The interstate permanently displaced thousands of African Americans either into the single-family residential South End or into public housing projects in various nearby locations. Overcrowding in the South End exacerbated an already deficient infrastructure, but as homeowners demanded upgrades to their neighborhood’s sewer and sanitation system millions of urban renewal dollars went instead toward plans that used the interstate to envision both the redevelopment and reinvention of the city as a commercial center and tourist destination. The grandiose plans never became a reality, the South End continued its deterioration, and African Americans quickly sought residence in other areas of the city. The redevelopment process in the South End ceased after the demolition stage while the interstate opened a corridor for suburban development. The racialized definitions of urban space contributed to the capitalist production of suburban space, which reinforced economic and sociocultural devaluations of the city and its residents and further spurred economic development in suburban areas. Perceptions about community space encouraged African Americans to claim and defend it while the perceptions of racialized urban space and the economic allure of suburban areas attracted both white residents and retail establishments. Many American cities experienced similar phenomena in the period, but sufficient scholarly attention has not been given to the variant contexts and varied successes and failures of civil rights struggles.

#126 10:15

**Demography of Burmese Refugee Population in San Diego**

Brigitte Young, Anthropology (U)
Frederick Conway, Anthropology

The goal of this project is to identify the Myanmar population in City Heights and create a comprehensive demography. This demography will give service providers in the area access to statistical data which will allow them to plan and fund programs in accordance to the needs and interests of the population. The information is being gathered through survey distribution using a variety of questions with a strong focus on linguistics barriers. Obstacles we have run into include finding reliable translators and inaccurate lists of addresses when locating refugees resettled over one year ago. The results of this research will both document the address of each respondent and will identify individuals in the Myanmar community that are English literate, decreasing the chance of such setbacks for future projects. This research project is being funded by The California Endowment under direct supervision of Jen Cordaro, Myanmar Community Organizer at the Alliance for African Assistance. The research is primarily being conducted by Brigitte Young and Clint Vansonnenberg and will conclude on May 31st, 2010.
Analysis of the Production Planning and Control Process of a Residential Project

Ana Catarina Pestana, Civil Engineering (M)  
Thais Alves, Civil, Construction, and Environmental Engineering

Construction is moving away from traditional construction management models and embracing the implementation of Lean Thinking on site and field operations. The application of Lean Thinking to construction aims at delivering maximum value to clients while creating flow and minimizing waste in its flows of work (e.g., design, construction, procurement). This study analyzes managerial practices currently used in a construction project and suggests ways to improve them based on Lean Thinking principles. The production planning and control system of a high-rise construction project in San Diego is used as a case study. The study describes the project's planning process, its characteristics and how they impact the construction system. Then it presents an analysis of the project's workflow, the managerial tools and principles applied to manage the production system. The study shows that for this project, the production planning and control system lacks transparency (i.e., the ability of a system to communicate with people). The planning process is unclear and does not have a formal structure, the workflow at the project site is not clear for all project participants, and the different planning levels seem to be disconnected. The lack of transparency at the construction site may result in lack of synchronization between trades, waste of time, a workplace that makes it difficult to move around, rework, and value loss to the final client. The lack of transparency at the construction site may result in lack of synchronization between trades, waste of time, a workplace that makes it difficult to move around, rework, and value loss to the final client. The planning process is unclear and does not have a formal structure, the workflow at the project site is not clear for all project participants, and the different planning levels seem to be disconnected. The lack of transparency at the construction site may result in lack of synchronization between trades, waste of time, a workplace that makes it difficult to move around, rework, and value loss to the final client. The planning process is unclear and does not have a formal structure, the workflow at the project site is not clear for all project participants, and the different planning levels seem to be disconnected. The lack of transparency at the construction site may result in lack of synchronization between trades, waste of time, a workplace that makes it difficult to move around, rework, and value loss to the final client. The planning process is unclear and does not have a formal structure, the workflow at the project site is not clear for all project participants, and the different planning levels seem to be disconnected. The lack of transparency at the construction site may result in lack of synchronization between trades, waste of time, a workplace that makes it difficult to move around, rework, and value loss to the final client.
very-heavy intensity domains, work efficiency is progressively reduced compared to the sublactate-threshold moderate-intensity domain. This is observed in a slow rise in oxygen uptake ($\dot{V}O_2$) termed the During work rates above lactate threshold, in the heavy and very $\dot{V}O_2$, slow component ($\dot{V}O_2$ sc), and is theorized to originate from recruitment of additional motor units to maintain force generation during progressive muscle fatigue. To characterize the relationship between muscle fatigue and the $\dot{V}O_2$ sc, voluntary peak power (PP) was measured in eight subjects. Participants performed three maximal 5-s isokinetic cycling trials at 60, 90, and 120 rpm under rested conditions (CON) and following 3 and 8 min of cycling at moderate, heavy, and very-heavy exercise. Muscle fatigue was determined from the reduction in velocity-specific PP compared to CON. The $\dot{V}O_2$ sc was measured from the difference in $\dot{V}O_2$ between minutes 3 and 8. During heavy-intensity exercise, there was no change in PP from CON to minutes 3 or 8 despite a $\dot{V}O_2$ sc of $162 \pm 133$ mL/min-1. During very-heavy-intensity exercise, PP at minutes 3 and 8 had decreased from CON (see Table), although there was no difference between minutes 3 and 8.

| CON PP (W) Min 3 PP (W) Min 8 PP (W) |
|---|---|---|
| 60 rpm | 281 ± 61 | 255 ± 51* | 242 ± 47* |
| 90 rpm | 378 ± 84 | 309 ± 65* | 313 ± 84* |
| 120 rpm | 410 ± 97 | 297 ± 86* | 285 ± 87* |

*different from the velocity-specific CON PP, P < 0.05

The $\dot{V}O_2$ sc in very-heavy intensity exercise was $449 \pm 164$ mL/min-1. These findings suggest muscle fatigue is not a feature of heavy intensity exercise nor is it temporally related to the $\dot{V}O_2$ sc during very-heavy intensity exercise. Rather, a reduction in PP appears to precede the progressive loss of work efficiency seen during exercise in the very-heavy intensity domain.

**#132 10:30**

*An Evaluation of Respiratory Suppression as a Means of Motion Management in Early Stage Lung Cancer Using TomoTherapy Stereotactic Radiotherapy*

Andrew Soderstrom, Radiological Health Physics (M)
Mark Young, Department of Physics

Stereotactic Body Radiation Therapy is novel modality used in radiation therapy supplying high doses to a 3-dimensionally located target in the body. Due to the high doses planned, motion of the target must be controlled during treatment. Data has been collected from 19 anonymous patients treated at Sharp Grossmont Cancer Treatment Center (The David and Donna Long Cancer Center). Data was processed using the “Planned Adaptive TomoTherapy Software” (TPA) package. Once processed, dose to the ipsilateral, healthy lung tissue was analyzed and interpreted. This data, compared to the data collected using the Treatment Planning System, shows the validity of TPA, and was compared to published, dose tolerances. In addition, follow up reports and PET/CT scans of the anonymous patients was examined where applicable to investigate any correlation of normal tissue dose and complications arising from the radiation treatment, including but not limited to pneumonitis, dyspnea, xerostomia or esophagitis. Upon completion of data analysis, it was found that respiratory suppression was an acceptable means for motion management. The dose to the normal lung volume was below published tolerances. Furthermore, PET/CT scans show local control in 94% of patients examined. The one patient who experienced local failure was ruled to be in result of insufficient dose. Karnofsky scores were assigned to patients based on follow up appointment dictations, the average score given was 93.8 ± 5.7, with minimum and maximum scores given were 85 and 100 respectively. The modal score was 100.

**#133 10:45**

*Effect of Uneven Surface of Incidence on Dose Distribution for Electron Beams during Radiotherapy*

Niral Shah, Radiological Health Physics (M)
Shirish Jani, Physics

Electron beam radiotherapy is used for treating superficial cancers, usually <6cm deep. Electron beams are characterized by their energy as well as central-axis depth doses when the beam is incident on a flat surface. However, in clinical situations such as treating the breast or perineum, the surface of incidence is often uneven. This leads to significant changes in depth penetration of the beam and hence may cause a geographic miss of radiotherapy. This study was aimed at measuring the effects of an uneven surface of incidence and its clinical implications during electron beam radiotherapy. Experiments were carried out at Sharp Memorial Hospital’s Radiation Oncology Department using a Varian Clinac 21EX linear accelerator. Five phantoms with uneven surfaces were created out of thermoplastic material. These were used to shape the surface of water in a three-dimensional motor-driven water phantom. Beam scanning was performed with five energies (6, 9, 12, 16 and 20 MeV) along with two field sizes (10cm² and 15cm²). Central-axis depth doses and profiles were measured. They were compared to doses computed using a Philips ADAC treatment planning system (TPS). The depth of maximum dose (Dmax) became shallow for an uneven surface of incidence by as much as 5.2 mm. The effect of an uneven surface was small for low energy electron beams. The beam output was altered by as much as 17%. For a concave surface of incidence, the TPS calculated depth doses were off by as much as 10 mm with measured values. The TPS outputs were off by as
much as 15% compared to measured values. Our measurements showed that the therapeutic depth of electron beams moved towards the surface while the TPS shows this depth as being deeper. This could result in an under-dosage to a patient’s lesion and, hence, possibly tumor recurrence. We concluded that the planning computers were unable to account fully for the effects of uneven surface of incidence.

**#134 11:00**

*Relationship between Chronic Stress and Carotid Intima-Media Thickness (IMT) in Elderly Alzheimer's Disease Caregivers*

Susan Roepke, Clinical Psychology (D)  
Igor Grant, UCSD Psychiatry

The stress associated with providing care for a spouse diagnosed with Alzheimer's disease can have adverse effects on cardiovascular health. One possible explanation may be that chronic caregiving stress exacerbates atherosclerosis. The purpose of this study was to determine if the length of time that one has been a caregiver (i.e. years since one's spouse was diagnosed with Alzheimer's disease) is associated with degree of atherosclerotic burden, as measured by common carotid artery intima-media thickness (IMT). Sixty-five elderly Alzheimer caregivers (mean age 74 ± 8.2 years, 66% female) underwent in-home assessment of common carotid IMT via B-mode ultrasonography. Our outcome of interest was the mean of all IMT measurements taken from the near and far walls of the right and left common carotid artery segments at two standardized interrogation angles for each vessel. Medical history, blood pressure, and indicators of caregiving stress (Clinical Dementia Rating Scale, Activities of Daily Living, and Instrumental Activities of Daily Living) were also collected. The mean common IMT for the sample was 0.70±0.1mm. Multiple regression analysis indicated that duration of caregiving was significantly and positively associated with IMT (beta=.279, p=.047), independent of the effects of other risk factors (age, gender, body mass index, mean arterial pressure, and caregiving stress). That is, caregivers reporting more years of caregiving were more likely to have elevated IMT compared to newer caregivers. Age and IMT were unassociated (beta=-.026, p=.844), indicating that our finding was not better accounted for by increasing age. Further, age and duration of caregiving were also unassociated (r=-.050, p=.693). One potential explanation for our main finding is that the chronic stress of being a caregiver may exacerbate arterial injury, which over time can result in development and progression of atherosclerosis. These findings provide more evidence of the potential links between caregiving stress and cardiovascular disease.

**#135 11:15**

*Do Developmental Changes in Cerebral Blood Flow Affect the BOLD FMRI signal?*

Mishaela DiNino, Psychology (M)  
Pamela Moses, Psychology

Functional magnetic resonance imaging (FMRI) is used increasingly to study the developing brain. FMRI measures changes in the blood oxygen level (BOLD) that occurs with neural activity. Despite the increasing use of FMRI with children, the physiological mechanisms that contribute to the BOLD signal are not well understood, especially in the developing brain. One of the key factors that influence the BOLD signal is the rate of delivery of oxygenated blood to the brain, cerebral blood flow (CBF). Our knowledge about developmental change in this fundamental physiological process has been limited due to the invasiveness of measurement techniques available to date, since such methods are inappropriate for use with healthy children. Nonetheless the few studies of CBF conducted with pediatric patient populations suggest that children have greater CBF than adults. Since CBF plays a key role in the FMRI signal, these finding raise the question of whether or not age-based differences in baseline CBF lead to age-related differences in the BOLD signal. This question is important for developmental imaging studies: observed differences in the BOLD response between children and adults might be attributed to developmental differences in cognitive development when they may actually originate from differences in CBF. This study addresses this question for the first time in the auditory cortex by using a more recent, noninvasive MRI method advantageous for safely studying healthy children during rest and activity. We assessed CBF during rest and CBF and BOLD signal change while listening to music relative to rest in young children, adolescents, and adults. Results show that young children have greater resting CBF than older children and adults. This confirms findings from previous studies utilizing invasive methods. The absolute difference in CBF between rest and stimulation was greater in younger children as well. Yet, the percent of change in CBF and BOLD between rest and music were not significantly different between groups. Interestingly, the comparability of the relative CBF and BOLD response to stimulation across ages despite baseline differences suggests that a third, compensatory process, namely oxygen metabolism, is also likely to be upregulated in the young brain.
Session A-24
Oral Presentation:
Materials and Mechanical Engineering
Friday, March 5, 2010, 10:00 am
Location: Quetzalcoatl B

#136 10:00
Assessing the Trade-off between Model Fidelity and Data Insufficiency in Selection of Composite Material Failure Criteria

Muhammad Navaid, Aerospace Engineering (M)
Satchi Venkataraman, Aerospace Engineering and Engineering Mechanics

Composite materials offer numerous advantages over traditional monolithic materials such as higher specific strength, greater corrosion resistance and good vibration damping characteristics. Improved use of composite materials is a key element to improving energy efficiency of future plane, trains and automobiles. A challenge in achieving higher efficiencies with composite materials is the development of more accurate models and material parameters for failure prediction. There are over twenty failure criteria to predict failure of fiber reinforced polymer matrix composites. Recent assessment of failure prediction show that the model formulated by Puck (1994) to be the most accurate. However, the Tsai-Wu criterion, developed in the 1960 and 70s, continues to be the work horse in industrial applications. The Tsai-Wu theory owes this widespread use due to its simplicity and need for fewer (five) material parameters that are derived from tests. However, the model fails to predict failure under certain loading regimes. To overcome this deficiency engineers choose larger safety factors when using Tsai-Wu. Using a more accurate model, allows us to decrease these safety factors and achieve lighter structural designs. The recently formulated Puck’s failure model provides such accuracy. However, the model requires as many as eleven material parameters, some of which require multiplicity of tests/experiments to deduce them. Obtaining material parameters from tests and quantifying their variability is costly and time consuming. Inaccurately quantified material parameters necessitate larger safety factors in the design to safeguard for the material property data uncertainty. Gains in improving model fidelity are negated by inaccuracy of the material parameters available. Engineering industry has been reluctant to adopt new failure models as they do not have tools to quantify a priori the costs involved in accurately characterizing the model parameters, and the gains one can achieve in structural efficiency from using the model. The current development offers a procedure to investigate the trade-offs between model fidelity and data uncertainty in failure prediction of composite materials. The method allows quantification of how accurately the materials parameters, in the higher fidelity models, should be assessed to achieve gains in structural efficiency when switching from existing lower failure prediction models.

#137 10:15
Preparation of SiC-C Composites by Free Pressure-less Spark Plasma Sintering (FPSPS)

William Bradbury, Mechanical Engineering (M)
Eugene Olevsky, Mechanical Engineering

Flax and crambe agricultural-waste stalks are carbonized and chemically activated with KOH solution for development of high specific surface area activated carbon (AC) monoliths. The products are infiltrated with silicon powder and synthesis of silicon carbide nano-wire-AC composite materials is carried out utilizing ultra-rapid heating rates through a novel processing method known as Free Pressure-less Spark Plasma Sintering (FPSPS). Preliminary results exhibit retention of SSA values and improved structural integrity compared with conventional synthesis procedures and may contribute to adsorption material and catalyst support fabrication technology.

#138 10:30
The Biomechanical Evaluation of Aortic Valve Leaflet Fusion in the LVAD-Assisted Heart

Phanthiwa Posuwattanakul, Bioengineering (M)
Karen May-Newman, Mechanical Engineering

A Left Ventricular Assist Device (LVAD) is a mechanical pump which is surgically implanted in the cardiovascular system. It reduces the work load of the heart by pumping the blood from the left ventricle to the aorta, bypassing the regular circulatory pathway. LVADs have been successfully used to support the function of the heart in heart failure patients as a bridge to transplant, bridge to recovery, or destination therapy. However, previous studies report that an abnormal aortic valve pathology, called commissural fusion, was found in LVAD patients. The fusion of the valve commissures, where the valve leaflets meet when the valve is closed, results from increased collagen deposition at the commissures which we hypothesize is due to the alteration of valve biomechanics. The fusion narrows the area of valve opening, which leads to a condition known as aortic stenosis which results in a reduction in the amount of blood sent to the body. The purpose of this study is to evaluate the effect of leaflet fusion in the LVAD assisted heart on the biomechanics of the aortic valve. Experiments were performed using the SDSU cardiac simulator with a MicroMed Debakey continuous flow LVAD to test different LVAD speeds and levels of cardiac contraction. Hemodynamic
parameters, including the left ventricular pressure, aortic pressure, aortic flow and the LVAD flow were measured before and after simulated fusion. A high speed camera was used to take images of valve opening and closing. Porcine bioprosthetic valves were used as test samples. Three conditions of the valves were observed, including unfused valves, one-commissural fused valves, and two-commissural fused valves. The results show that the fusion of the valve leaflets causes a decrease in the area of valve opening. At normal cardiac output and medium LVAD speed (10krpm), the maximum area of opening is reduced by 18.44% in one-commissure fusion and 37.94% in two-commissure fusion. These results support the hypothesis that fusion of aortic valve leaflets decreases the area of opening of the valve leading to valvular dysfunction, such as aortic stenosis and regurgitation.

#139 10:45
Modeling the Meso-Scale Evolution of Anisotropic Materials During Sintering
Gordon Brown, Computational Science (D)
Eugene Olevsky, Mechanical Engineering

Monte Carlo (MC) simulations are widely used for understanding a wide variety of physical phenomena including the microstructural evolution of sintering bodies. The physics of these phenomena are frequently directionally dependent in nature. Unfortunately, the models currently in use do not accommodate these anisotropic properties. With regards to sintering materials, anisotropy has a significant effect on grain growth rates which impact critical material properties. One of the more popular simulations is a Potts MC model. This research focuses on the use of a two-dimensional Potts MC model to simulate the evolution of the granular structure and modifies the existing algorithms to incorporate the effects of anisotropy inherent in the material. The anisotropy is introduced using Wolff plots to map the anisotropy in the surface energy of the grains. Limitations of this algorithm imposed by the underlying lattice structure are identified and analyzed. A novel solution to mitigate the artifacts resulting from the lattice is proposed and evaluated. This type of Potts MC model is widely used in many fields including problems in statistical physics, weather simulation, radiation damage, etc. In almost all of these applications, the artifacts resulting from the underlying lattice structure are a concern. The ability to incorporate anisotropic grain growth in our meso-scale modeling allows the investigation of anisotropic granular development under several different situations to better understand some of the observed anisotropic phenomena.

Session B-1
Poster: Psychology II
Friday, March 5, 2010, 11:30 am – 2:00 pm
Location: Montezuma Hall South

#141 11:30–1:00
Do Companies Help their Commuting Employees?
Trevor Cherr, Psychology (U)
Shulamit Ritblatt, Child and Family Development

Many organizations do not offer to help their employees balance their work/home lives because they do not know how to approach the problem. Previous research suggests that organizations choose not to get involved with their employees' home lives because they see it as separate from the workplace or they do not know how to help. This study addressed how organizations respond to the needs of their employees who are involved in commuting relationships. For the purposes of this study, a commuter couple consists of at least one partner who exits and re-enters the family system at least ten times per year, or a couple with one partner who is absent from the family system for at least one month per year. 209 participants completed a questionnaire based on their relationship to the commuting spouse. The questionnaires addressed whether or not the company responds to the family’s needs and how they offer to help. The questionnaires also asked the participants to offer suggestions on how companies should respond to the needs of commuter employees. It was predicted that more commuter participants would say that their company does respond to the family's needs more than at-home spouses. The results supported this hypothesis by showing that most commuter participants reported that companies do help out the commuter's family during a commute and most at-home spouses reported that their spouse's company does not help. These findings indicate that companies should find ways of helping their employees and their employees’ families deal with the commuting lifestyle. Future research on how companies can help their commuting employees should investigate what methods are most effective for companies to use.

#142 11:30–1:00
Does Gender Make a Difference when Assessing the Positives and Negatives of Commuting in Couples?
Nancy Chavez, Psychology (U)
Shulamit Ritblatt, Child and Family Development

The fast growing global economy has forced many families to adapt to the idea of having a spouse or parent travel outside of the home for work. Researchers are beginning to see that this is not simply a trend but a shift in the work force leading to a
Shift in family dynamics, including gender roles. An increase in the number of dual-career couples has led more women to travel outside of the home, leaving behind the responsibilities of parenting and household duties to their male counterparts. Previous research shows that males more often than females reported having felt role strains or higher role demands while their spouse was away. The most common strains came as a result of family and work responsibilities clashing. The current study was conducted to analyze the effects of commuting on family dynamics. For the purpose of the study, “commuting” families were defined as families in which one or both parents engaged in frequent overnight long distance travel for the purpose of work. A paper-and-pencil questionnaire, also available online, was made available for every member of the family in order to assess the relationships between the commuter, the at-home spouse, and the children. The questionnaire assessed several aspects of family life before, during, and after the commute including the positive and negative aspects felt by all family members. A comparison of male and female responses to questions regarding negative and positive aspects of commuting showed that partners differentiated in the ways they perceived the commute. It was predicted that the reported positive aspects of commuting would be higher for females whose spouse is the commuter than those reported by males with commuter spouses. The data will not only show differences between male and female commuters, but will also show differences between spouses. Future research should focus more on the positive aspects that commuting provides for females, as well as how males are dealing with the reversal of gender roles.

#143 11:30–1:00
Becoming the Eagle: Cultural Gesture Practices Influence Perspective-Taking of Non-Human Animals
Kelsey Novi, Psychology (U)
Sara Unsworth, Psychology

Gestures supplement spoken language and have been shown to impact cognition (Goldin-Meadow, 1999), yet very little research has examined the cognitive implications of culturally varying gesture practices. In the present research we conducted two studies to explore gesture and thought among Menominee Native Americans, rural European Americans, and non-Native psychology undergraduates. In the first study we used interviews and found that Menominee adults used first-person perspective gestures of the non-human animal (i.e. flapping arms when speaking about an eagle) more often than European American adults. Our second study involved experimentation to examine whether these perspective-taking gestures played a causal role in non-native undergraduates’ mental representations. Participants were told stories about non-human animal protagonists in either a control condition in which there were no gestures, or in experimental conditions in which they were asked to watch or mimic gestures reflecting a 1st person perspective of the protagonist. Participants were then given a picture preference task to measure their mental representation of the story. The results showed that participants were more likely to take the perspective of the non-human animal protagonist when they were mimicking the first person gestures compared to the other conditions. Implications for cultural transmission and embodied cognition are discussed.

#144 11:30–1:00
Collectivism vs. Individualism: Effects of Group vs. Individual Work on Comfort Levels
Ashley Pennoyer, Psychology (U)
Barbara McDonald, Psychology

According to the U.S. Homeland Security 2008 Yearbook of Immigration Statistics, over 1 million immigrants legally obtained permanent residence in the US last year, continuing to bring together different cultures. Collectivistic and Individualistic tendencies have been examined as a way to explain cultural differences in human behavior. This study investigated how these two cultural tendencies would interact with assignment to work in a group or work individually and reported comfort levels associated with each. It was hypothesized that individuals with collectivistic associations would report higher comfort levels when working in a group and those with individualistic associations would report higher comfort levels when working individually. A sample of 201 ethnically diverse undergraduate students were randomly assigned to both conditions. Results showed higher comfort ratings for individualists in individual work, but insignificant differences between the two conditions for collectivists; Hispanic and Asian/Pacific Islander students revealed small differences in comfort levels between group and individual condition. As well, a positive correlation was found between students GPA’s and higher comfort ratings working alone. These results confirm and support previous research and also suggest assimilation into mainstream culture.

#145 11:30–1:00
Reconsidering Ethnic Identity Categories: Differences in Ethnic Identity Indicators among Students Differing in the use of Broad Versus Specific Ethnic Descriptors
Alejandra Morlett, Psychology (U)
Elizabeth Klonoff, Psychology

Self-categorization, that is, identifying oneself as a member of a particular social group, is considered to be a basic element of social identity that informs on an individual’s sense of belongingness, knowledge, attachment, pride, and level of behavioral involvement to a specific social group (Phinney & Ong, 2007). According to Phinney (1992), adequate measurement of ethnic identity requires verifying that individuals being studied in fact...
Sara Yniguez, Psychology  
Saturnino Yniguez, Psychology (U)  
Self-efficacy In Science among American Indian Youth

In the present research we examined the relationship between self efficacy in science and cultural identity, self esteem and perceptions of agreement between science and culture among American Indian students. Participants were recruited from the American Indian College Recruitment program at San Diego State University. All of the participants resided in San Diego County, and the majority lived on reservations near San Diego. Their ages ranged from 11 to 16 years. Participants completed a survey in which they were asked to rate their level of agreement with statements reflecting the variables of interest. The results showed that self efficacy in science was positively correlated with cultural identity and perceptions of agreement between science and culture, but was not correlated with self-esteem. Self-esteem was positively correlated with cultural identity and perceptions of agreement between science and culture, suggesting an indirect relationship between self-esteem and self-efficacy in science.

#147  11:30–1:00

Marital Distress, Acculturation, and Acculturative Stress in Mexican American Couples

Priscilla Rios, Psychology (U) 
Donna Castañeda, Psychology

Previous research has found that acculturation is positively related to marital distress for Mexican American wives, but is unrelated to any dimension of marital distress among husbands. Acculturative stress may be equally as important in understanding marital distress among Mexican American couples as acculturation. The purpose of this study is to investigate actor and partner effects of acculturation and acculturative stress on marital distress among Mexican American newlywed couples. A total of 85 Mexican American heterosexual couples aged 18 or older and married 12 months or less were included in this study. All participants were recruited from the community. Materials: Global Distress Scale. Acculturation Rating Scale for Mexican Americans-II. Multidimensional Acculturative Stress Inventory. This scale assesses acculturative stress originating from the Mexican and American cultures through four acculturative stress subscales. The Actor-Partner Interdependence Model was used to investigate the effects of acculturation (AC) and acculturative stress (AS) on marital distress among Mexican American couples.

Examination of paths from AC and the four AS subscales to marital distress revealed that for wives, a mixture of actor and partner effects were significantly related to marital distress. Wives own pressure to learn Spanish, husbands’ level of acculturation, and husbands’ pressure to acculturate were positively related to marital distress among wives. Husbands’ pressure to learn English and pressure not to acculturate were negatively related to marital distress among wives. For husbands, only actor effects were significantly related to marital distress. Only husbands’ own level of acculturation and pressure to learn Spanish were positively related to marital distress. Results demonstrate that cultural adaptation variables are important predictors of marital distress among Mexican American couples. Wives are affected by husband’s level of acculturation and acculturative stress to a greater extent than husbands are by their wives’ level of acculturation or acculturative stress. Women may be more sensitive to the interpersonal aspect of marital relationships, while for husbands, job or economic issues may be more important predictors of marital distress. Mexican Americans experience acculturative
stress originating from Mexican as well as American cultures, nonetheless, it clearly influences distress in marital relations, as results in this study show.

## #148 11:30–1:00

**Infant Temperament: Predictor in Behavior Problems in Early Elementary School**

Amanda Chiapa, Developmental Psychology (M)  
Joseph Price, PhD., Psychology

There is evidence indicating that early temperament can predict symptoms of anxiety and depression in early adolescence (Ystrom and Mathiesen, 2009) and externalizing behavior in 7-10 year olds (Bates, et al, 1998). However, there is a lack of research on the role of early temperament in predicting behavior problems among children entering elementary school, an important transitional stage. The purpose of this study was to examine the relation between parents’ retrospective ratings of temperament and child behavior problems as children are entering elementary school. This study used 2 factor derived subscales of Bates’ Retrospective Infant Characteristics Questionnaire (RICQ) to measure temperament as well as internal and external subscales of the Child Behavior Checklist (CBCL) to measure internal and external symptoms of anxiety and depression in early adolescence (Ystrom and Mathiesen, 2009) and externalizing behavior in 7-10 year olds (Bates, et al, 1998). However, there is a lack of research on the role of early temperament in predicting behavior problems among children entering elementary school, an important transitional stage. The purpose of this study was to examine the relation between parents’ retrospective ratings of temperament and child behavior problems as children are entering elementary school. This study used 2 factor derived subscales of Bates’ Retrospective Infant Characteristics Questionnaire (RICQ) to measure temperament as well as internal and external subscales of the Child Behavior Checklist (CBCL) to measure internal and external symptoms. The sample consisted of 183 children of mixed ethnicity, some of whom had experienced some form of maltreatment. Parents were given a 24-item questionnaire (RICQ) and asked to rate the characteristics of their child when he or she was an infant. A factor analysis of the RICQ revealed two internally consistent subscales: the Fussy subscale, with 91 possible points, exhibited high internal consistency (Cronbach’s Alpha of .885) and the Adaptability subscale, with 21 possible points, evidenced moderate internal consistency (Cronbach’s Alpha of .578). Higher scores indicate a higher degree of difficulty in infant temperament; thus, a high score in adaptability indicates difficulty in adapting. Correlations between the temperament and CBCL subscales revealed a significant correlation between the fussy subscales and the total internalizing symptoms scale score. There was also a significant gender by adaptability interaction on the somatic subscale: males who exhibited difficulties in adapting as an infant demonstrated higher somatic symptoms. The correlations between infant temperament and current externalizing problems revealed significant associations between temperament ratings for the Fussy/Difficult subscale and later externalizing problems, especially among females. Difficulties in adaptability were significantly related to externalizing problems among females. Analyses are planned for examining the role of maltreatment and the potential interaction with temperament in predicting child behavior problems.

## #149 11:30–1:00

**Recruiting for Voluntary LGBT training**

Richard Drake Jr, Industrial/Organizational Psychology (M)  
Allison Vaughn, Psychology

Although a plethora of studies have examined the effectiveness of sexual harassment and workplace safety training, little research has focused on how to recruit people for non-mandatory trainings. We examined characteristics of the recruiter and the people actually being recruited for voluntary LGBT (lesbian, gay, bisexual, transgendered) diversity training. In addition, we wanted to investigate how these characteristics relate with skills offered in the training. San Diego State University (SDSU) undergraduates (n=174) from an introductory psychology course participated in the study. Each student received a vignette and a questionnaire. The vignette consisted of information about the recruiter’s background and general information on the LGBT diversity training offered. All vignettes contained identical information except for the gender and sexual orientation of the recruiter (male/straight, male/gay, female/straight, and female/lesbian). Previous research on compliance has demonstrated that if a message has personal relevance, people are more likely to pay attention. Each vignette described the recruiter as an undergraduate SDSU student with interests in music and movies. Also, building off of authority research, each recruiter was actively involved with the Safe Zones board. Our study included a number of hypotheses. First, we predicted participants would be more interested in the training if the recruiter’s sexual orientation and gender synced up with the participant. Moreover, regardless of sexual orientation, we expected more women would be interested in the diversity training than men. Third, we hypothesized that participants in contact with lesbian/gay/bisexual friends, family members, classmates, co-workers would be more inclined to find the training beneficial, important to one’s career, or have personal relevance. Finally, we thought personal contact would impact the perception of the recruiter’s credibility and trustworthiness. Data supported our hypotheses, although our primary hypothesis was not as consistent. However, there were some relationships. For example, men did not care for the straight or lesbian female recruiter. However, we may have found additional support for the hypothesis if additional gay, lesbian, and bisexual students participated. Future researchers could actively seek gay/lesbian/bisexual students. Nevertheless, considering the paucity of research on the topic, the strengths of the study outweigh issues with the sample.
**Session B-2**
**Poster: Cognitive and Social Sciences**
Friday, March 5, 2010, 11:30 am – 2:00 pm  
Location: Montezuma Hall South

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**#150 12:00–1:30**
**Targeted Community Assessment: Pediatric Healthcare Services in Imperial Valley**
Ruth Perry, Nursing (U)  
Helina Hoyt, Nursing

Background: SDSU School Of Nursing has a fairly new relationship with the healthcare providers in the Imperial Valley. Since the summer of 2008, RN-BS students have been working closely with local healthcare personnel to identify community resources, vulnerable populations, and service gaps. 21% of Imperial County residents live in poverty. Currently, this border region has the highest unemployment rates nationally. This project addressed pediatric healthcare services in the community at all levels of prevention. Alarming incidence rates exist for Tuberculosis, Asthma, Diabetes, and Obesity. Unfortunately, many local children must travel outside of the county to access all levels of care.

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**#151 12:00–1:30**
**Acculturation and Body Dissatisfaction among Latino College Students**
Duvia Lara, Psychology (U)  
Elizabeth Cordero, Psychology

The purpose of this study is to examine the effects of acculturation in body image among Latino college students. Body dissatisfaction in today’s society has become more prevalent. There have been several studies about body image, but only a few focus on Latinos. Previous research has shown that self-esteem and eating pathology have a correlation with body image but the majority of this research was conducted with predominantly White samples (Striegel-Moore & Smolak, 2000). For our research, we will examine the relationships between body image and eating pathology, self-esteem, and acculturation in Latino college students. With this study we hope to get a better understanding of the importance of body image within the Latino population and to promote a better well-being. We hypothesized that Latinos who have higher acculturation will have higher body dissatisfaction than Latino college students who are less acculturated. We also hypothesized that Latino college students with higher body dissatisfaction will demonstrate more eating pathology and have more desire for a thin ideal. For our third hypothesis, we expect that Latino college students with lower levels of acculturation would show higher body satisfaction and higher self-esteem. Data collection is in progress; data will be collected from 250 participants by February 2010. Participants include college men and women who complete a survey packet. The packet includes the Acculturation Rating Scale for Mexican Americans- II (ARSM-A-II) which is a 30- item Likert-type scale which measures acculturation along 3 primary factors: language, ethnic identity, and ethnic interaction (Cuéllar, Arnold & Maldonado, 1995). The Multidimensional Body-Self Relations Questionnaire (MBSRO), which measure the participant’s image of their body (Cash, 2000). The Weight-Related Eating Questionnaire (WREQ) concentrates on routine restraint, compensatory restraint, susceptibility to external cues, and emotional eating (Schembre, Greene & Melanson, 2008). A demographic questionnaire assesses participants’ age, gender, education, ethnicity, height, weight, college, and place of birth. Limitations and future directions will be discussed.

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**#152 12:00–1:30**
**Body Image and Alcohol Use in Mexican-American College Students**
Joseph Pipkin, Psychology (U)  
Elizabeth Cordero, Psychology

The purpose of this study is to examine alcohol use and body image among Mexican and Mexican-American college women. Unhealthy alcohol consumption and body image problems are widespread in the college student population. Research has shown that body image problems and unhealthy alcohol consumption such as binge drinking are correlated within the university population (Nelson, 2009). We believe using alcohol as a coping mechanism will be present among college women. However, past samples focused on this specific research have been predominately European Americans. Limited information is known about Mexican-American college students’ experiences of body image and alcohol use despite the rising Mexican-American population college enrollment. Furthermore, some college students of Mexican descent that are born in Mexico may have different ways of coping with specific problematic situations than their Mexican-American counterparts. We are specifically investigating the difference between Mexicans born in Mexico and Mexican-Americans born in the United States.
#153 12:00–1:30

Cancer and Fatigue among Latinos and Latino-Americans
Aliss Ramos, Psychology (U)
Elizabeth Cordero, Imperial Valley Campus

Fatigue is a constant lack of energy not caused by a lack of sleep. There are two forms of fatigue, acute (lasting a month or less) or chronic (lasting a month or longer). Fatigue in general can impact normal functions, such as hygiene, social interaction, etc, but when an individual is suffering from cancer it not only impacts normal functions but also the quality of life. Cancer-related fatigue is one of the most common side effects from cancer treatment and is one of the most upsetting symptoms a cancer patient can go through. Investigations are ongoing to understand differences between emotional fatigue and physical fatigue, however many of these investigations have been directed to the Anglo community. Questionnaires have been developed in English and Spanish to assess fatigue, yet there has been little empirical effort to examine the experience of fatigue in Latino cancer patients. This study investigates the phenomenon of fatigue among Latinos of Mexican descent that have been diagnosed with cancer. It is hypothesized that Latinos will report that they experience some of the symptoms reported by other populations as well as symptoms that are culturally unique. Data collection for this study is in progress and will be completed by February 2010. Participants are adult cancer patients who self-identify as Latinos and are residents of Imperial Valley, California. Participants participate in focus groups of 6-8 people that are conducted in English or in Spanish. Focus-group questions include: “What do you think of when you think of fatigue?”; “What words can be used to describe the experience?”; and “How does fatigue from your cancer compare to other times you have felt fatigue?” Additionally, participants review together the Spanish translation of the Multidimensional Fatigue Symptom Inventory Short Form (MFSl) and provide feedback about the appropriateness of the items; participants complete the MFSl, as well. Qualitative and quantitative data obtained from this study will be used to inform research and treatment efforts for Latino cancer patients in order to improve their quality of life.

#154 12:00–1:30

Prostate Cancer Side Effects and Psychosocial Distress in Patients
Vincenzo Roma, Psychology (U)
Vanessa Malcarne, Psychology

According to the American Cancer Society, in 2009 192,280 American men are expected to be diagnosed with prostate cancer, which makes prostate cancer the most frequently diagnosed cancer in men. Many of these men will experience significant psychosocial distress in response to their cancer diagnosis and treatment, and the cancer experience will negatively impact their spouses as well. Intrusive thoughts, hyperarousal, and avoidant coping styles have been found to be associated with distress among cancer patients (Baider et al., 1998). The present study was aimed to examine the relationship of the three primary side effects of prostate cancer (urinary, bowel, and sexual problems) to intrusive thoughts, hyperarousal, and avoidance. A sample of 164 prostate cancer patients and their spouses enrolled in a clinical trial to test the efficacy of a cognitive-behavioral treatment. At baseline, before random assignment to condition, patients and spouses were administered the Impact of Events Scale-Revised, and patients completed the Prostate Cancer Index. Correlational analysis indicated that patients’ intrusive thoughts, hyperarousal, and avoidance were all significantly positively associated with spouses’ intrusive thoughts. When examining the relationship between the side effects of the prostate cancer and patient and spouse distress, correlational analysis showed that patients’ reports of urinary function problems were significantly associated with patients’ intrusive thoughts (r = -0.200, p < 0.05), and hyperarousal (r = -0.236, p < 0.01). In addition, patients’ reports of bother associated with urinary problems were significantly correlated with patients’ intrusive thoughts (r = -0.314, p < 0.01) and hyperarousal (r = -0.283, p <0.01). In contrast, neither bowel function/bother nor sexual function/bother were significantly correlated with patient distress. Also, none of the patients’ reports of urinary, bowel, or sexual function/bother were significantly correlated with any of the spouse distress scores. These findings suggest that urinary problems associated with prostate cancer may be particularly important in identifying and understanding adverse psychosocial reactions in patients. Although there were no direct relationships between urinary problems and spouse distress, the associations between patient and spouse distress suggest that addressing problems in the patient may have a positive impact on the spouse as well.
The Correlations between Self-efficacy, Symptoms, Measures of Recovery, and Quality of Life in Severely Mentally Ill Older Adults

Denisse Tiznado, Psychology (U)
Brent Mausbach, UCSD-Psychiatry

Patients with schizophrenia are known to suffer from cognitive and functional deficits that can greatly affect their quality of life. To maximize patient’s quality of life, it is necessary to identify important factors that can greatly affect their well-being. Crucial factors such as these can be the focus of interventions that aim to improve patient well-being. This study examined the importance of self-efficacy in socialization on patients diagnosed with schizophrenia and its relationship to clinical symptoms, social interactions and recovery. Participants included 31 middle-aged or older participants (Mean age= 50.4, SD=5.4), with a DSM-IV chart diagnosis of schizophrenia or schizoaffective disorder. Self-efficacy was measured using the Revised Self-efficacy Scale (RSES). Participants perceived recovery was measured using the Recovery Assessment Scale (RAS). Positive and negative symptoms were measured using the Positive and Negative Syndrome Scale (PANSS) for schizophrenia, and depression was measured using the Calgary Depression Scale (CDS). We examined correlations between scores on the self-efficacy scale and those measuring recovery, symptoms of psychosis, depression and social contact. Significant correlations were found between self-efficacy (social subscale) and total recovery assessment scale scores, r (29)= .690, p < .001. For the recovery assessment sub-scales, we also found significant correlations with personal confidence and hope, r (29) = .630, p < .001, willingness to ask for help, r (29) = .462, p = .009, goal and success orientation, r (29) = .672, p < .001, reliance on others, r (29) = .664, p < .001, and not feeling dominated by their symptoms, r (29) = .499, p = .004. Significant correlations were also found with social contact, r (29) = .647, p < .001. Negative correlations were found between self-efficacy and depression, r (29) = - .414, p = .020 and negative symptoms, r (29) = - .440, p = .013. This study indicates that participants’ self-efficacy is associated with higher scores on recovery variables, greater social contact, and lower symptoms of psychosis (especially negative symptoms). Emphasis on increasing self-efficacy should be made in an attempt to increase and improve quality of life in patients with psychosis.

Portion Size Estimation Study

Kandel Beeson, Psychology (U)
Georg Matt, Psychology

The purpose of this study is to gain a more detailed understanding of how people, specifically college students, interpret small, medium, and large portion sizes. It explores individual perceptions of portion sizes and how they affect one’s dietary intake. Based on literary research, it is important to assess these individual estimations to further knowledge in one’s dietary habits. We hypothesized that it also takes into account not only gender in the interpretation of portion sizes, but acculturation, education, nutritional value, and family history. Specifically, we will address the following questions: 1) Do men and women differ in their portion size estimation? We expect a difference in men and women’s portion size estimation in that women will estimate portions on a smaller scale than men. 2) Does familiarity and unfamiliarity affect portion size estimation? We expect that unfamiliarity of a specific food used will result in a smaller portion size estimation. 3) Does acculturation affect one’s portion size estimation? We expect that acculturation does affect one’s portion size estimation in that those who are unacculturated will estimate smaller portion sizes. 4) Does availability of food affect one’s portion size estimation? We expect that the more available the food is to a participant, the smaller the portion size estimate. 5) Does the nutritional values of the food influence one’s portion size estimation? We expect that the healthier the food item, the larger the portion size estimation will be in comparison with the original food item. We expect that the benefits of this study will help researchers measure food intake as well as perfect the commonly used self-report measures. This study also will help better describe portion sizes that are used on food packaging and in restaurants.

Stressed Out? Academic Organization Involvement and Social Comparison Anxiety among Undergraduate Students

Jason Dudley, Psychology (U)
Richard Graf, Psychology

Previous research indicates that college students experience a considerable amount of anxiety due to academic stressors (Ross, et al., 1999). In addition, college seniors are under a considerable amount of stress because they are contemplating graduate school and beginning to transition into the workforce (Barsetti, 2009). Furthermore, Festinger (1954) proposed that competitive settings drive social comparison and result in a stronger influence on self-evaluations compared to an individualistic setting. The present study aimed to identify social comparison as a factor accounting for college students’ anxiety. It was predicted...
that involvement in academic organizations will increase social comparison anxiety for senior undergraduates but will not have an effect on social comparison anxiety for students in lower class levels. It was also predicted that upper division students who were involved, and planned on attending graduate school will experience more social comparison anxiety than students who were not involved. A questionnaire was completed by 198 undergraduate students. The predicted interaction between academic organization involvement and class level was found, p < .03. Moreover, the predicted second order interaction between class level, involvement, and post-graduate plans was found, p < .05. Upper division students involved in academic organizations reported higher levels of social comparison anxiety than lower division students who were involved. Among students planning on attending graduate school, organizational involvement had more of an impact on social comparison anxiety than for students entering the workforce. Although the benefits of involvement in academic organizations have been well established (Emerick, 2005; Huang & Chang, 2004), the present study demonstrates that this may not be the case under all conditions.

#158 12:00–1:30

Nurse Leader Stress Study (NLSS)

Ian Smith, Business Management (U)
Lisa Kath, Psychology

This poster presentation illustrates the findings from the Nurse Leader Stress Study (NLSS), which was utilized to identify predictors of nurse manager stress, the outcomes of the stress they experience, and how the relationship between these variables may be influenced by stress buffers. Understanding the stress experienced by nurse managers (those who supervise the nurses who directly provide patient care) is critical to acute-care hospitals because of the central role nurse managers play in creating a healthy work environment for the nurses they supervise. There is also a need to understand nurse manager stress because of the increasing need for improved recruitment and retention of nurse managers. We hypothesized that certain resources (namely, job characteristics such as decision authority and predictability) would buffer the effects of stressors and perceptions of stress on a variety of outcomes. A sample of 480 nurse managers from the Southwestern region of the United States participated in the study by completing the 158-item survey, designed to measure stressors, perceptions of stress, stress outcomes, and job characteristics. Hierarchical multiple regression was used to analyze the data, and overall results generally support the buffering effect of decision authority, predictability, and social support. Nurse managers reported moderately high levels of stress, and the primary driver of nurse manager stress was role overload, followed by role conflict and interpersonal conflict. As expected, stress had negative consequences for nurse managers across several outcomes, including mental health, physical health, job satisfaction, and burnout. Results for the hypotheses were mixed. We found decision authority was an important buffer of stress across multiple outcomes, and that predictability, coworker support, supervisor support, and hospital support buffered the effects of stress on job satisfaction. These results indicate that nurse managers can be shielded from the negative outcomes associated with job stress when they are given the authority to make decisions about how to do their work and when they are supported by coworkers and supervisors.

#159 12:00–1:30

Examining the Effect of Mental Illness Labels and Symptoms on Stigma through Emotional Reactions toward the Mentally Ill

Jeffrey Treiber, Psychology (U)
Melody Sadler, Psychology

An experiment investigated effects of symptoms and labels on social stigma of severe mental illness (SMI), specifically Schizophrenia (SZ) and Major Depression (DP), through emotional reactions towards individuals with SMI. In particular, whether the presence of an SMI label precipitates stigma or whether stigma is a function of symptoms stereotypic of SMI. Further, the current study investigated if this relationship changes as a function of whether participants are first exposed to an individual’s SMI symptoms or label. A 3 (Symptoms: SZ symptoms, DP symptoms, No symptoms) x 2 (Label: Label, No Label) x 2 (Order: Symptoms first, Label first) between-participants design was utilized. Participants (N=200) read a job advertisement and were exposed to a fictitious job applicant. Applicant qualifications were held constant across conditions. Symptoms were conveyed in notes from a telephone interview with the applicant’s former employer. Labels were embedded in a background check with brief medical history. Stigma was assessed through expected emotional reactions of participants toward working with the applicant (e.g., scared, comfortable, etc.). Emotional reactions were valenced within-participants (i.e., positive, negative). A manipulation check revealed participants in the symptoms conditions recalled more condition-specific details than participants in the control condition. Additionally, participants in the label conditions recalled the label more often than not, suggesting both manipulations were successful. Results revealed that participants expressed stronger negative emotions toward working with the applicant than positive emotions. The magnitude of these negative emotions increases if the applicant exhibits SMI symptoms as compared to not exhibiting SMI symptoms. Results also indicated that the negativity of emotional reactions did not vary as a function of whether or not the applicant had a mental illness label or the order in which participants learned of an applicant’s SMI symptoms.
or label. Although participants exhibited stronger negative emotions towards individuals with SMI as a function of symptoms, this was not the case for SMI labels. Thus, SMI symptoms may influence negative emotional reactions towards individuals with SMI. Understanding such emotional processes may have ramifications for understanding public perceptions of SMI and for reduction of SMI-related stigma.

**#160 12:00–1:30**

**The Effects of Sense of Community on Obesity**

Laura Calcagno, Nursing (U)  
Diane Thomason, Nursing

Background: Obesity is now a national epidemic, particularly in low-income and minority youth. Adolescents possess a stronger sense of community (SOC), where school is the community known to buffer attitudes. However, few studies exist of how SOC may be fostered to provide success in relation to combating the obesity epidemic. This study, which employed an experimental group composed of a target student with a “buddy” and a control group composed of a target student alone, examined SOC in relation to overweight/obese low-income ninth grade high school youth ages 13-15 via an individualized eating and exercise program (IEEP). Primary Goal: Evaluate if a “buddy” in an IEEP influences SOC compared to controls. Objectives: At the first and final meetings 1) 100% of experimental and control groups will be weighed, measured, and BMI calculated; 2) 100% of experimental and control groups will complete pre and post SOC surveys; 3) Each week, 100% of targets' buddy meeting attendance will be recorded Secondary Goal: Evaluate if a “buddy” in an IEEP influences SOC compared to controls. Objectives: 1) 100% of experimental and control groups will improve their nutrition, exercise habits, and knowledge base compared to controls. Objectives: 1) 100% of experimental and control groups will complete pre and post IEEP surveys; Each week: 2) 100% of experimental and control groups will be counseled and educated regarding healthy nutrition and exercise related to their individual goals; and 3) 100% of control and experimental participant goals will be evaluated and recorded Methods: SDSU nursing students recruited overweight or obese students (N=21) during lunch, through health screenings, or were referred by the school’s health clinic. Outcome measures included baseline and final BMIs, and pre and post SOC and IEEP assessments. SDSU students met weekly with all participants to establish weekly goals and objectives, provide social support, education, and counseling regarding eating and exercise habits. Statistical analyses were performed to determine change in BMI, SOC and IEEP scores of both groups. Outcomes: BMI decreased in the experimental group (n=9) and was stable in controls (n=12). SOC scores, in two subscales, and IEEP scores increased in both groups.

**Session B-3**  
**Poster: Psychology Health I**  
**Friday, March 5, 2010, 11:30 am – 2:00 pm**  
**Location: Montezuma Hall South**

**#161 12:30–2:00**

**High Body Mass Index Intensifies Hunger Rating in Older Adults**

Delaney Downer, Psychology (U)  
Claire Murphy, Psychology

The prevalence of overweight and obesity in older adults is a steadily growing public health concern, making the identification of maladaptive eating behaviors especially important. Relationships between Body Mass Index (BMI) and hunger rating were investigated using a general labeled magnitude scale (gLMS) adapted for hunger. Participants included twenty young adults (M = 23.9), and twenty older adults (M = 72.2) with equal numbers of males and females per age group. Participants were asked to replace their mid-day meal with foods offered during the behavioral study. Each participant was offered a variety of foods and ate until satisfied. Exact kilocalories consumed were then recorded. Subjective hunger ratings were collected before and after the meal using a numeric gLMS. Young adults with a BMI of 25 or less were assigned to the normal BMI young adult group (n = 12) and those with a BMI greater than 25 were assigned to the high BMI young adult group (n = 8). Older adults with a BMI of 28 or less were assigned to the normal BMI older adult group (n = 10), while those with a BMI greater than 28 were assigned to the high BMI older adult group (n = 10). Before eating, older adults in the high BMI group reported significantly higher mean hunger ratings (M = 34.6, SD = 17.8) than older adults in the normal BMI group (M = 18.6, SD = 7.15), F (1, 18) = 6.97, p < .05. Before eating, older adults showed a significant positive relationship between BMI and hunger ratings, r(18) = .52, p < .05. Young adults reported similar mean hunger ratings before eating regardless of their BMI. Participants reported having little or no hunger regardless of age or BMI group after eating. Older adults with high BMI had significantly lower hunger ratings compared to the young adults in general. Previous literature has suggested that perception of hunger changes with age, and the current results suggest that these changes in hunger perception may be modulated by BMI. This study was supported by NIH #AG04085 from National Institute on Aging to C.M.
Spatial Pattern Separation is Impaired in Nondemented Older Adults without Depression

Calhuei Hoebel, Psychology (U)
Paul Gilbert, Psychology

Pattern separation is a neural mechanism that may serve to reduce interference among overlapping representations of similar stimuli in memory, and may be critical to the formation and retrieval of episodic memories. Computational models suggest that the hippocampus supports the operation of a pattern separation mechanism. Increased interference and decreased efficiency in pattern separation could represent a key processing deficiency associated with aging. The present study examined the ability of healthy young adults (18-25) and nondemented older adults (65+) to complete a task requiring spatial pattern separation. It was hypothesized that spatial pattern separation efficiency in nondemented older adults would decrease on trials with increased interference. To control for cognitive deficits related to depression, younger adults (n = 15) completed the Beck Depression Inventory, while older adults (n = 15) completed the Geriatric Depression Scale. On the experimental task, the participants were asked to remember the location of a gray circle that appeared on a computer screen for 5 seconds. After a delay, participants were asked to indicate which of two circles (red, blue) appeared in the same location as the gray circle. The target and foil circles on choice-phase trials were separated by one of four spatial separations: 0, 0.5, 1.0, and 1.5 cm. Younger adults outperformed older adults across all spatial separation lags (p = .05). Therefore, pattern separation may be less efficient in older adults, possibly as a result of age-related changes in the hippocampus. Since the performance of older adults without depression improved as a function of increasing separation lag, the age-related deficits are not caused solely by a general spatial or working memory deficit. A decline in episodic memory is a hallmark cognitive deficit associated with aging, and a potential early indicator of impending Alzheimer's disease. Distinguishing one episodic memory from another may require a pattern separation mechanism to separate the spatial elements of one memory from those belonging to a different memory to avoid catastrophic interference. These findings are consistent with a published study showing age-related impairments in pattern separation for visual objects in nondemented older adults.

Relationships between Prospective Memory and Everyday Functioning in Parkinson's Disease

Shea Gluhm, Psychology (U)
Paul Gilbert, Psychology

Prospective memory (ProM) refers to the ability to remember to carry out planned actions in the future, or “remembering to remember”. ProM is thought to be involved in many everyday tasks such as remembering to take medications at a certain time or passing on a message to a colleague. Previous research has shown that prospective memory is heavily dependent on the frontal lobes. Recent studies have reported ProM dysfunction in PD and have attributed this finding to the disruption of frontal-striatal circuits in this disease. Since ProM is thought to play a critical role in everyday abilities, the present study examined relationships between ProM and performance-based measures of everyday functioning in PD. Nondemented PD patients were administered the Memory for Intentions Screening Test (MIST), a well-validated, standardized measure of ProM. In addition, participants were administered two standardized, performance-based measures of complex everyday tasks. Medication adherence was measured with a role-play task in which participants were asked to carry out how they would take four medications over a one-day period. The ability to manage finances was assessed with a task in which participants were required to pay bills, deposit checks, and balance a checkbook. Results revealed that ProM was a significant predictor of performance on the medication adherence test. However, ProM was not related to performance on the task measuring the ability to manage finances. These findings suggest that ProM dysfunction is important for optimal medication adherence in individuals with PD. Although further studies are needed to examine the predictive validity of ProM, assessments measuring ProM may prove to be a useful tool in clinical evaluations of medication adherence, and possibly other activities of daily living, in individuals with PD.

Age and ApoE status Effects on Olfactory Event-related Potentials

Krystin Corby, Psychology (M)
Claire Murphy, Psychology

As individuals age, their ability to detect odors declines, along with the ability to discriminate between odors—even when higher concentrations are used. Decreases in olfactory acuity are significantly related to decline in cognition. For individuals positive for the e4 allele of the Apolipoprotein (ApoE) gene, the process typically begins earlier with a faster rate of cognitive and olfactory decline than those without the e4 allele. The ApoE e4 allele is
also associated with increased risk for Alzheimer’s disease. When measuring olfactory event-related potentials (OERPs), the third peak (P3) is considered to be a cognitive component. Previous studies have demonstrated OERP differences based on age and the ApoE e4 allele. The purpose of this study was to investigate the effects of age and ApoE e4 status on the N1, P2, N2, and P3 components of OERPs. By studying this, it may be possible to better understand at what age the ApoE e4 allele negatively impacts olfactory cognitive processing, and investigate the stage of cognitive processing of the middle age and older adults. Adult participants in age groups of young (18 to 28 years old), middle (45 to 56), and older (65 and older) were recruited from the San Diego community. All participants were administered an olfactory detection task to elicit the OERP. The stimulus was amyl acetate presented for 200 milliseconds every thirty seconds by olfactometer. Statistical analyses were performed using multivariate analysis of variance. There were significant effects of age and ApoE e4 status on OERP latency. In the young and middle age groups, ApoE e4 positive participants had significantly longer P3 latencies than participants who were negative for the allele. Within the older group, all four peaks (N1, P2, N2, P3) had significantly longer latencies in the ApoE e4 positive individuals. In conclusion, the ApoE e4 allele may have significantly detrimental effects on olfactory function throughout the human lifespan, with older individuals impacted most.

**#165 12:30–2:00**

**Directed Attention in Children with Heavy Prenatal Alcohol Exposure**

Jessica O’Brien, Psychology (M)
Sarah Mattson, Psychology

Prenatal alcohol exposure is associated with attention problems, but the nature and specificity of these deficits are not well understood. The current study examined directed attention in this population. Children with histories of heavy prenatal alcohol exposure (ALC, N=21) and controls (CON, N=22) were evaluated using a computerized measure of directed attention. Subjects were shown hierarchical figures that were inconsistent (e.g., an H made of L’s) or consistent (e.g., an H made of H’s). They were directed toward either the global or local level (on separate blocks) and indicated whether that level was an H or an L. In the global-directed condition, the CON group had slower RT for inconsistent than consistent figures, indicating a local bias. RT was unaffected by consistency in the local-directed condition, again suggesting a local bias. In the ALC group, RT was slower than the CON group for all conditions and there were no consistency effects for either global- or local-directed trials. The local bias demonstrated only by the CON group indicates that alcohol-exposed children are less susceptible to the interfering effects of hierarchical figures and may have deficits in local processing.

**#166 12:30–2:00**

**Chemosensory Responding for Ethanol and Prototypic Sweet, Bitter and Oral Trigeminal Stimuli in Selectively Bred High Alcohol Drinking (HAD2), Low Alcohol Drinking (LAD2) and N/NIH Progenitor Rat Lines**

Jeffrey Olney, Psychology (M)
Susan Brasser, Psychology

Increasing evidence indicates that biological mechanisms that mediate sweet taste processing are involved in alcohol consumption and preference. Knocking out the Trtr3 sweet taste receptor subunit results in an absence of normally expressed ethanol preference in C57BL/6J mice (Brasser et al., 2006; Blednov et al., 2008) and a suppression of central neural taste responses to ethanol in this strain (Lemon and Brasser, 2008). Sweetener consumption is also one of the strongest behavioral predictors of alcohol intake common across multiple alcohol-prefering rodent lines/strains (Overstreet et al., 1993; Sinclair et al., 1992; Stewart et al., 1994; Woods et al., 2003), and human data has supported elevated sweet preference as a phenotypic marker of genetic risk for alcoholism (Kampov-Polevoy et al., 2003a,b). Recent data from our laboratory has shown that genetic selection for alcohol preference in alcohol-prefering (P) rats is associated with enhanced orosensory responses to both alcohol and sweet stimuli in the absence of blood ethanol levels that would result in significant postdigestive effects (Silbaugh et al., 2008). The present study compared self-initiated chemosensory responding for alcohol and prototypic sweet, bitter, and oral trigeminal stimuli among HAD2, LAD2, and N/NIH progenitor rat lines to determine if elevated sensory-mediated responses to alcohol and sweet substances is a consistent biological phenotype associated with genetic alcohol preference across independent line pairs. Rats were tested for immediate short-term lick responses to alcohol (3-40%), sucrose (0.01-1 M), quinine (0.01-3 mM) and capsaicin (0.003-1 mM) in a brief-access paradigm designed to index orosensory-guided behavior. HAD2 rats displayed an absence of orosensory ethanol avoidance at any concentration tested, whereas N/NIH rats showed a concentration-dependent avoidance and LAD2 rats exhibited low levels of responding overall. HAD2 rats had significantly elevated sucrose response functions relative to LAD2 rats, but these lines expressed no differences in orosensory sensitivity to quinine or capsaicin. These results are consistent with previously observed patterns of chemosensory responding in the independently-derived P/NP line pair and data from manipulation of sweet taste substrates in C57BL/6J mice, suggesting that genetic variation in sweet taste processing may impact the gustatory processing of alcohol and result in differences in alcohol preference.


#167 12:30–2:00

**Expressivity through Musical Perception in Individuals with Williams Syndrome**

Philip Lai, Language and Communicative Disorders (D)  
Judy Reilly, Psychology

Williams Syndrome (WS) is a rare neurodevelopmental genetic disorder, characterized by a hemizygous micro deletion of about 25 adjacent genes on the long arm of chromosome 7. Williams Syndrome is present at birth, affects males and females equally, and has been found in all ethnic groups throughout the world. Of interest to cognitive scientists is the uneven cognitive profile that is characteristic of WS individuals. In spite of mild to moderate retardation, with full scale IQs of around 55 to 60, a complex pattern of strengths and weaknesses is found in their cognitive abilities. Weaknesses include visuo-spatial skills, conceptual reasoning abilities, and motor control, whereas strengths are seen in linguistic abilities, facial processing, and sociability. Anecdotal reports from the last 50 years suggest that music may be a strength in the WS profile. To better understand the musicality of the WS population, the present study quantifies non-verbal response behaviors to emotional music. It is hypothesized that when individuals with WS listen to pieces of emotional music, they will produce more non-verbal response behaviors with respect to frequency, duration, and range when compared to TD individuals. Participants consisted of 12 individuals with WS, ages 11 to 19 (Mean age = 14.5 years, SD = 2.7 years) and 12 TD individuals, ages 11 to 17 (Mean age = 13.2 years, SD = 1.6 years). Eudico Linguistic Annotator (ELAN) software was used to code six categories of non-verbal response behaviors as participants listened to 10 musical pieces conveying three types of emotions (happy, sad, and scared). A 2x2x3 (Group x Gender x Emotion) One-Way Repeated-Measures Analysis of Variance (ANOVA) with the repeated measures over the last factor was conducted for both frequency and duration. A paired sample t-test was conducted to analyze the ranges of non-verbal response behaviors in the two groups. Results revealed that individuals with WS were more expressive when they were involved with music compared to TD individuals. This study serves to further characterize this unique social and cognitive profile of individuals with WS, adding musicality as a characteristic of the Williams Syndrome phenotype.

#168 12:30–2:00

**Effects of BMI on fMRI Activation to a Pleasant Taste during Hedonic Evaluation in Older Adults**

Erin Green, Clinical Psychology (D)  
Claire Murphy, Psychology

Although obesity is currently recognized as a global health epidemic, little attention has been directed to the rising prevalence of obesity in the fastest growing segment of the population, older adults. The objective of the current analysis was to investigate associations between body mass index (BMI) and fMRI activation to a pleasant taste during a hedonic evaluation task. Twenty healthy older adults (ages 65+) were recruited from the community and were screened for exclusionary criteria including dementia, ageusia, and anosmia. Participants fasted for 12 hours prior to being scanned, during which time they received 8 separate administrations of a .64M sucrose solution separated by water rinses. T2*-weighted echo planar images were acquired using an event-related paradigm on a 3T GE Signa EXCITE Short-Bore research scanner. Data were processed using both whole brain and region of interest analyses, and systematic associations between BMI and fMRI activation to sucrose were found for both analyses. Specifically, BMI was negatively correlated with activation of the insula, nucleus accumbens and caudate nucleus. Although little is known about how reward processing of food-related stimuli is altered during the aging process, these data indicate a strong association between decreased activation of reward regions and greater amounts of body fat in otherwise healthy older adults. Further research is warranted to investigate whether decreased activation of the reward system may precede weight gain, or if food-related stimuli become less rewarding after an unhealthy accumulation of abdominal fat. Exploring relationships between chemosensory processing and levels of body fat in older adults may aid in increasing understanding of age-related nutritional problems and changes in eating behavior. Supported by NIH Grant #1 R01 AG04085 to C.M.

#169 12:30–2:00

**Regulation of Sustained Isometric Force in Children with Heavy Prenatal Alcohol Exposure**

Tanya Nguyen, Clinical Psychology (D)  
Jennifer Thomas, Psychology

Heavy prenatal exposure to alcohol is known to have teratogenic effects on the developing brain, resulting in a wide range of neuropsychological sequelae. Among these behavioral alterations are impairments in motor performance including motor timing, gait production and delayed motor skill development. The present study investigated the control mechanisms underlying regulation of sustained isometric force production in children with heavy prenatal alcohol exposure, which has not been previously examined. Children between 7-17 years of age with heavy prenatal alcohol exposure (n = 20) and typically developing control children (n =17) pressed or released a load sensitive transducer that produced a continuous force output, which was visually displayed on a computer monitor as a series of yellow dots that unfolded left-to-right with time. Pressing or releasing the load transducer controlled the vertical position of the dots on the monitor. Also displayed on the monitor was a single horizontal line that represented a criterion force of either 5% or 20% of maximal voluntary
contraction. Participants were instructed to produce a force that superimposed the yellow dots on the criterion force line for the duration of the trial (20 seconds). For each force level, three levels of visual feedback frequency were used by programming the yellow dots to appear every 20ms (50Hz), 320ms (3.1Hz) and 740ms (1.4Hz). Five test trials were provided for the six combinations of force and feedback frequency. With age entered as a covariate, statistical analyses revealed that children with histories of prenatal alcohol exposure produced significantly greater response error (root-mean-square error), response system variability (signal-to-noise ratio) and reduced response signal organization in the time domain (sample entropy) than control children. The study confirms that in utero alcohol exposure is associated with significantly decreased control of isometric force production, a finding which could be relevant to therapeutic exercises designed to ameliorate motor deficits in this clinical group. Research supported by NIAAA grant AAR21014017-01.

Session B-4
Poster: Stem Cells and Neurobiology
Friday, March 5, 2010, 11:30 am – 2:00 pm
Location: Montezuma Hall South

#170 11:30–1:00

Stem Cell Based Treatment of Cartilage Defects
Nicholas Glembotski, Mechanical Engineering (U)
Tsaiwei Olee, Burnham Institute

Arthritis and cartilage degeneration are leading causes of disability in both the aging population as well as in younger demographics that engage in increasingly intense physical activity starting at earlier ages. It is estimated that nearly 50% of the US population will show symptoms of osteoarthritis (OA) by age 65. OA is difficult to treat for adult cartilage lacks adequate blood supply and innervations, as well as the cellular concentration necessary to repair damage. Currently OA is treated with autografts of healthy cartilage from a less critical area of the joint to the injured area, allograft of donated cartilage to the affected area, autologous chondrocyte implantation, or knee replacement. Each of the treatments has its drawbacks, grafting does not integrate well into existing cartilage, total knee replace is a traumatic process, and autologous cell implantation is often limited by the cells available. The pluripotency of human embryonic stem cells (hESC) and induced pluripotent stem cells can potentially supply nearly unlimited numbers of chondrogenic progenitor cells. Using these cells, we have attempted to repair articular cartilage defects ex vivo. Stem cells were differentiated into chondrogenic progenitor in DMEM/F12 containing 10% FBS. Osteochondral specimens were surgically resected from the joints of adult arthritic human patients undergoing total knee replacement. Six-mm diameter cylindrical plugs were cored out with an Arthrex Single Use OATS System (Naples, Fl). A surgical curette was used to make partial-thickness defects approximately 2 mm in size in the articular surface. The defects were filled with hESC-derived chondrogenic precursors which had been aggregated under the following mechanical pressures: 5 X 105 cells centrifuged in 15-ml conical tubes at 400 X g for 5 min in DMEM/F12 supplemented with 10% FBS and incubated overnight in the presence or absence of TGFB3. The treated explants were cultured in chondrogenic media containing TGB3. After 4 weeks, explants were fixed, paraffin-embedded, sectioned, and stained with Safranin O. Transplanted cell pellets from differentiated human stem cells showed good integration into the native cartilage and high levels of chondrogenesis. Initial results show that this method of treatment has great potential in the clinic.

#171 11:30–1:00

Analysis of Leukemia Stem Cell Potential from Human Embryonic Stem Cell Derived Cells
Warren Plaisted, Biology (U)
Roland Wolkowicz, Biology

Chronic myelogenous leukemia (CML) is a clonal bone marrow stem cell disorder for which there is an established hypothesis regarding the molecular changes that foster leukemia stem cell formation. CML is the consequence of a 9:22 chromosome translocation, resulting in the formation of the Philadelphia-positive (Ph+) chromosome carrying the pathognomonic fusion protein BCR-ABL. Overexpression of BCR-ABL and its constitutively active protein tyrosine kinase product P210BCRABL leads to increased and unregulated myeloproliferation. Efforts to model mechanisms of persistence, therapeutic resistance, and progression of the disease are limited by relatively scarce CML patient samples and the lack of abundance, genetic tractability, and expandability of hematopoietic stem cells (HSCs). As such, an alternative source for modeling CML and similar blood diseases would be beneficial to the development and rapid translation of novel cancer therapies. Human embryonic stem cells (hESCs) have the potential to serve as a limitless source of HSCs for reproducibly generating leukemia stem cells. Collaboratively, the Goldstein and Jamieson groups have generated CD34+ cells from the hESC line Hues16 via coculture with the aorta-gonad-mesonephros cell line Ug26.1B6. CD34+ cells were lentivirally transduced with GFP-Luciferase and BCR-ABL or BCR-ABL with constitutively active-catenin or shRNA-GSK3 and transplanted intrahepatically in 1-2 day old Rag2-/-/-;γc-/- mice. After 8-12 weeks, liver, spleen, and bone marrow were harvested for analysis of human hematopoietic engraftment. Currently, tissue samples from primary and secondary transplants are being analyzed for hCD45+ and...
Autism spectrum disorders (ASD) have a strong genetic component, and several chromosomal loci and genes associated to ASD vulnerability indicate that these disorders are genetically heterogeneous. However, a large number of genes implicated in the development of ASD may be part of common molecular pathways. For example, genes involved in calcium signaling have been strongly related to ASD. Mutations in different voltage-gated Ca\(^{2+}\) channels have been identified in ASD patients, in addition, Ca\(^{2+}\) regulated signaling molecules have also been associated to these disorders. Our group has recently identified a clear-diagnosed autistic patient with a translocation that disrupts the TRPC6 gene in chromosome 11, causing a drastic reduction in the levels of its expression. Recent studies indicate that TRPC6 promotes dendritic formation and growth through CaMKIV and CREB phosphorylation, dependent on Ca\(^{2+}\) influx. These evidences suggest that alterations in the function of TRPC6, and maybe others genes in this pathway, can lead to neuronal alterations that may be causally involved in the etiology of ASDs. With the purpose of studying the possible association between TRPC6 and autism, we will realize a set of complementation studies using induced pluripotent stem cells, reprogrammed from the autistic patient’s dental pulp with the identified mutation. We will complement the disturbed gene using a lentivirus carrying the TRPC6 cDNA, and would then analyze the resulting phenotypes looking for an improvement in dendritic growth or cell proliferation. Simultaneously we will down regulate the expression of TRPC6 in control cells using short hairpin RNA interference. Such a gain/loss of function approach can place TRPC6 as a novel candidate gene in ASDs, and also provide a proof-of-principle of functional recovery via gene therapy.

**#174 11:30–1:00**

**Characterization of White Matter Architecture in Subjects with APOE2 and APOE4 Genotypes**

Michael Valdez, Biology (U)

Usha Sinha, Physics

Apolipoprotein E (APOE) genotype is the best indicator for Alzheimer’s disease (AD) risk factor. Allele APOE4 reduces this risk while allele APOE2 increases it. Patients with AD experience a loss of integrity of the white matter in their brains. Magnetic Resonance based diffusion tensor imaging (DTI) and indices derived from it such as apparent diffusion coefficient, fractional anisotropy, and relative anisotropy provide important information on the microarchitecture of brain tissue. As water diffuses more readily along fibers rather than perpendicular to the fibers, diffusion anisotropy is a sensitive indicator of the structural integrity of white matter fibers. Normal subjects with the two alleles were imaged with diffusion tensor imaging and the diffusion indices were analyzed in regions of interest selected manually. Regional comparisons of the diffusion indices showed that there was a difference (P < .05) between the subjects with the APOE4 and APOE2 alleles, indicating the potential for DTI to identify differences in white matter micro-architecture in the two populations.
#175 11:30–1:00

**Identification of Molecules that Regulate Neural Stem Cell Self-renewal, Differentiation, and Migration**

Melissa Carrillo, Molecular biology (M)  
Ulrich Mueller,

Defects in the development of the mammalian cerebral cortex lead to several neurological and psychiatric diseases; yet we know little about the mechanism that regulate cortical development and lead to disease. In order to identify the molecular pathways that regulate cortical development, we will search for molecules that regulate the self-renewal, differentiation and migration of neural stem cells in the developing cerebral cortex. We will treat organotypic slice cultures established from the developing cortex of embryonic mice with a library of soluble proteins and small molecules that are candidates to control stem cell fate. Prior to treatment, stem cells will be labeled by electroporation with an EGFP marker that allows us to follow their fate using fixed sections and real time imaging. We will also transfect the slice cultures with shRNA constructs in order to disrupt endogenous gene function and evaluate the consequences for the behavior of stem cells and their offspring. Promising candidates identified in the screen will be studied further for their role in regulating the self-renewal, differentiation and migration of cultured ES and iPS cells.

#176 11:30–1:00

**The Thingin Chili**

Antonio Olea Jr., Biology (U)  
Robert Pozos, Biology

There is limited information concerning the topic of gustatory sweating (GS), hand sweating and facial skin blood flow (FSBF). A previous study reports that ingested capsaicin increases gustatory sweating, as well as blood flow to the forehead. Through the usage of galvanic skin response (GSR) and Near Infrared Spectroscopy (NIRS), GS and FSBF were simultaneously measured in 10 subjects, previous to and after the ingestion of capsaicin in the form of salsa. Data analysis indicates that capsaicin induces GS on the forehead as well as FSBF. FSBF varies on the right and left side of the face. Subjects who exhibited an increase in FSBF on one side of the face had an increase of 104.74% whereas subjects who exhibited an increase in FSBF on both sides of the face showed an increase of 204.62%. The GSR revealed a significant increase in GS of the forehead as well as the hand.

#177 11:30–1:00

**Deciphering the Gene Regulatory Network Controlling Peripheral Nervous System Development in the Invertebrate Chordate Ciona intestinalis**

Weishene Tang, Cell & Molecular Biology (M)  
Robert Zeller, Biology

It is widely believed that the evolution of the mechanosensitive organs and structures of the peripheral nervous system (PNS) depended on modifications to conserved gene regulatory networks (GRNs). Genes encoding a highly conserved family of transcription factors, the basic-helix-loop-helix (bHLH) genes, have been identified in both vertebrates and invertebrates, and have been shown to play a role in regulating sensory organ development. The mechanisms by which these genes regulate PNS development, however, remain unclear. The chordate invertebrate Ciona intestinalis is closely related to vertebrates and is a powerful model for investigating the GRNs controlling sensory organ development. The PNS of larval C. intestinalis is composed of ciliated epidermal sensory neurons (ESNs) that develop from the dorsal and ventral midlines of the tail, and are believed to be mechanosensors. Homologs of proneural bHLH genes have been found in C. intestinalis, but their functions have yet to be determined. By studying how bHLH genes regulate ESN development in C. intestinalis, we may shed light on the common developmental mechanisms that give rise to mechanosensory organs. To characterize the mechanisms by which bHLH genes regulate ESN development in C. intestinalis, we may shed light on the common developmental mechanisms that give rise to mechanosensory organs. To characterize the mechanisms by which bHLH genes regulate ESN specification in C. intestinalis, we first confirmed the expression of bHLH homologs in neural precursor cells of C. intestinalis during development using in situ hybridization. Of the five bHLH genes investigated, three (Amos, Ash, NeuroD) may have a conserved proneural function. Amos and NeuroD gene expression was observed in ESN precursor cells during development, indicating a potential role in ESN specification. Ash was expressed along the dorsal and ventral midlines prior to Amos and NeuroD expression. In other organisms, Amos, Ash, and NeuroD have been shown to play a role in the Notch signaling pathway, which acts to restrict cell fate. Interestingly, expression of the Notch ligand Delta2 was observed in ESN precursor cells. Notch signaling may therefore restrict which midline cells eventually form ESNs. Further experiments will be done to confirm 1) that these three genes are involved in the Notch signaling pathway, 2) that these genes have a proneural function, and 3) that these genes interact with each other to form a proneural GRN.
#178 11:30–1:00

**Roles for the ER Stress Response in Human Embryonic Stem Cell-Derived Cardiomyocytes**

Christine Thornton, Cell and Molecular Biology (M)
Chris Glembotski, Biology

Disruption of the endoplasmic reticulum (ER) environment leads to critical changes in protein folding, resulting in the accumulation of misfolded proteins in the ER. The accumulation of misfolded proteins is a common feature of various immune, neurodegenerative, endocrine, and age-related pathologies. Oxidative stress, calcium dysregulation, and ATP depletion, all of which occur during ischemia, lead to the misfolding of proteins and the subsequent activation of the ER stress response (ERSR). Previous studies have shown that the activation of one branch of the ERSR, mediated by the transcription factor ATF6, leads to the induction of several cardio-protective genes, including the chaperone protein, GRP78. GRP78 interacts with misfolded proteins to correct their conformation, thereby relieving ER stress. Characterization of human embryonic stem cell-derived cardiomyocytes (hESC-CMs) has shown that in contrast to mature cardiomyocytes, hESC-CMs do not express the intracellular calcium handling proteins, calcineurin and phospholamban, and exhibit negative force-frequency relations, displaying enhanced stimulation correlating with low contraction amplitudes. The absence of critical intracellular calcium handling proteins and the resulting negative force-frequency relations suggest that calcium dysregulation is a characteristic of hESC-CMs. Accordingly, the hypothesis addressed in this study is that hESC-CMs exhibit relatively strong apparent activation of the ERSR in the absence of canonical ER stressors, and that during simulated ischemia, which was recently described as an ER stressor, the ERSR is significantly increased and serves a protective role. To address this hypothesis, the specific aims are to assess ER stress in hESC-CMs by 1) optimizing and utilizing a quantitative and automated cellular assay that measures activation of the promoter for the ATF6-inducible protein, GRP78 and 2) investigating the functional roles of ERSR activation during simulated ischemia in hESC-CMs using a viability assay. It is anticipated that GRP78 promoter activity will be higher than differentiated cells in the absence of ER stress, and that it will increase even further in response to simulated ischemia and that this increase will correlate with enhanced hESC-CM survival.

#179 11:30–1:00

**Induction of a Functional Antiviral Response and Selection for Attenuated Coxsackievirus B3 Variants in Persistently Infected Neural Progenitor and Stem Cell (NPSC) Cultures**

Ginger Tsueng, Biology (D)
Ralph Feuer, Biology

Coxsackievirus infection frequently targets the central nervous system (CNS) in newborn infants causing serious diseases, such as meningitis and encephalitis. We previously described the ability of coxsackievirus B3 to target neural stem cells, persist in the murine CNS, and cause chronic immunopathology in our neonatal mouse model. However, cytopathic virus could not be isolated from the CNS at later time points. Utilizing recombinant coxsackieviruses expressing eGFP or dsRED, here we demonstrate that murine neural progenitor and stem cell (NPSC) cultures are highly susceptible to coxsackievirus B3 (CVB3) and establish a carrier-state infection. We followed CVB3 infection in NPSC cultures (replenished with complete media upon sampling) for over 50 days to determine the ability of these cells to survive CVB3-mediated cytopathic effects and retain stem cell function. Simultaneously, we examined viral protein levels (as determined by eGFP expression) and viral titers over time. Infected NPSCs induced interferon-beta, supported robust cycles of cell proliferation and death, and expressed detectable levels of viral protein for over 50 days. Viral titers and viral plaque sizes initially increased and then decreased over time, suggesting that strong selection pressures in these dynamic stem cell cultures contributed to virus attenuation. In addition, persistently-infected NPSCs were resistant to super-infection with dsRED-CVB3, suggesting the presence of an effective and continuous antiviral response. We are presently evaluating if NPSCs surviving eGFP-CVB3 infection remain functional and give rise to similar ratios of neurons, astrocytes, and oligodendrocytes, as compared to mock-infected NPSCs. These studies may provide valuable information on the antiviral state of NPSCs and potential stem cell dysfunction in the host following a neurotropic viral infection.
#180 12:00–1:30

The Effect of Mentoring on Child and Family Development 275 Students

Priscilla Mendez, Child and Family Development (U)
Shulamit Ritblatt, Child and Family Development

An opportunity arose in the Fall 2009 semester for a certain group of Child and Family Development students. A group of students were asked to join a Child and Family Development 499 special study with Dr. Ritblatt. In this course, the objective was to prove Darwin’s relevance today not only in college, but also create science-based curriculum for the youth of today. This group of students became mentors to the Child and Family Development 275 class taught by Dr. Feilen. The mentors were asked to guide their mentees through the curriculum planning process for the preschool classes at the San Diego State University Children’s Center. The effect of the relationship between the mentees and the mentors was evaluated at the end of the semester. The evaluation was done through an open-ended questionnaire. The group of mentors along with Dr. Ritblatt and Dr. Feilen developed the final questionnaire. Each of the mentors developed a set of questions to allow the mentees to reflect back on their experience with their mentors. The mentors then analyzed the suggestions. Dr. Ritblatt and Dr. Feilen selected ten questions to be included in the final questionnaire. They were distributed on the last day of the semester at the mentors’ final presentation at the San Diego State University Children’s Center. The questionnaire was then collected and the results were calculated. It is hypothesized that the students in the CFD 275 course found the help and input of the mentors to be an advantage and that they felt more comfortable working with the same group of fellow students, mentor and preschool classroom at the San Diego State University Children’s Center than with ever-changing interactions. The results of the questionnaire will provide valuable qualitative data to support whether the mentee-mentor relationship was a positive or negative experience on the mentees.

#181 12:00–1:30

A Look at Satisfaction with Music as a Kindergarten Readiness Tool

Bobbi Cannon, Child and Family Development (U)
Shulamit Ritblatt, Child and Family Development

The study at hand utilized a ten week music program to examine the effects of using music to enhance kindergarten readiness in preschool students. Children who participated ranged in age from 3 to 5 years old and were currently enrolled in the San Diego State University Children’s Center. Of the four preschool classrooms, the two west wing classrooms (Giraffes and Dolphins) were assigned to the control group, while the East wing classrooms (Whales and Elephants) were assigned to the experimental group. Consent was collected for 47 children in the control group, and 55 children in the experimental group. Twenty songs were created in collaboration with Dr. Shulamit Ritblatt and Baby Genius. These songs represent skills that teachers and researchers believe to be helpful for kindergarten readiness. Our preliminary data, which represent baseline measures, were gathered during the 10-week program in the Fall 2009 semester and involved three parent surveys, three teacher surveys, the Joseph Pre-School Self-Concept Screening Test, and structured video and written observations in the classroom. Surveys for parents included the Preschool and Kindergarten Behavior Scales, Parent-Child Relationship Inventory, and Parent Involvement Survey. Teachers filled out the Teacher Rating on Parent Involvement, PKBS, and Kindergarten Readiness Survey. After the initial ten week program, parents and teachers filled out satisfaction surveys. We hypothesized that throughout the study parents and teachers will be satisfied with the program. Of our 55 participants in the treatment group who received the music program, 25 returned their satisfaction surveys. Of 25 surveys 23 indicated overall happiness with the program. Of the three teachers who participated in the treatment group all three indicated satisfaction with the program. Qualitative data will also be analyzed to show which songs parents and teachers found to be most effective using information gathered from both observations and self-report surveys. With overall satisfaction shown for this program, it is indicated that future success can be expected.
#182 12:00–1:30

**Scaffolding: A Means of Preparing Undergraduate Students to Cultivate Culturally Relevant and Developmentally Appropriate Preschool Curriculum through the Lens of San Diego State University’s 2009/2010 Common experience**

Whitney Baumann, Child and Family Development (U)
Shulamit Ritblatt, Child and Family Development

In the Fall of 2009 the Child Family Development (CFD) 275 class, which teaches the undergraduate CFD students how to establish developmentally appropriate curriculum, shifted its focus to incorporate the San Diego State University’s 2009/2010 Common Experience. The course was structured around the inclusion of a multi-dimensional support system comprised of faculty members, upper-division undergraduate mentors, and lower-division undergraduate mentees. Integrating this three-tiered mentoring process utilized the process of scaffolding, a principle of Lev Vygotsky. Through this process, the mentors guided and assisted the CFD 275 mentees with developing integrated science curriculum that was implemented at the S.D.S.U. Children’s Center, in what became known as the Darwin meets Vygotsky project. The objective of this project was to develop socially and culturally relevant integrative science curriculum that incorporated principles of Charles Darwin’s philosophy while emphasizing the socio-cultural aspects of Lev Vygotsky’s theory. The premise of this research study is to examine the effects of the scaffolding process, and to describe the link between the theories that inspired this project and the mentoring processes. It is predicted that scaffolding enriched the mentee’s prepared curriculum as well as encouraged and stabilized the mentee’s ability to write and implement developmentally appropriate curriculum. Evidence of this enrichment will be supported by the multiple documents that were recorded throughout this process. The individuals’ journeys will be analyzed by examining the journals of the mentors and mentees, the documented guidance given to the mentees from the mentors at their weekly meetings, the mentees’ documentation panels and the multiple mentee cultivated activities developed through-out the semester which were combined to form an integrated science preschool curriculum. The results of this research are expected to show the positive effects that scaffolding has on an individual’s educational process at any level. Additionally, it is anticipated this research will show that the layered mentoring processes within the project engaged the mentors, mentees, and children in an interactive learning process that was conducive to their development, learning and understanding of teaching, mentoring, curriculum development and a general understanding of self and environment.

#183 12:00–1:30

**Effects of A Mentorship Program on A Mentor**

Stephanie Kitasoe, Child Development (U)
Shulamit Ritblatt, Child and Family Development

This study evaluates the success of a mentorship program by researching nine mentors relationship with their mentees during the fall 2009 semester. The purpose is to focus on the effects on the mentors and to observe their personal development through working with a group of students. Each mentor was assigned to work with five students from the CFD 275 course on developmentally appropriate practices. The class was based on incorporating Darwin and Vygotsky theories to an integrated science curriculum that each student developed and implemented with a group of preschool children at the SDSU Children’s Center under the guidance of their mentor. Each week the mentors met with their students to discuss progress of their work, brainstorm ideas, observe the implementation of activities from their curriculum, and help the students complete their final curriculum. This study used individual journals that each mentor recorded their experience in weekly, throughout the semester. These journals were used to collect and analyze data about their mentoring journey. It also used an exit questionnaire given to each mentor to evaluate the effectiveness, experience, and growth that came from the process of mentoring. After completing this study, it is believed that the majority of the mentors will have felt that they not only grew as an individual, but also became more competent as a mentor and played a fundamental role in their mentee’s success in the course. The results will indicate whether or not working with a group of mentees helped mentors become more effective and will reveal the impact amongst different aspects of their lives. These aspects include efficient communication, promotion of leadership skills, enhancement of knowledge base, assistance in relationships by demonstrations of the importance of trust and encouragement, and advancement in becoming a useful resource for their mentees.

#184 12:00–1:30

**Communication is Key**

Shira Kern, Psychology (U)
Shulamit Ritblatt, Child and Family Development

A comparative study evaluated how family dynamics are affected by a commuting spouse who is frequently absent from the home as part of a professional lifestyle and career. In the study being a “commuter” meant traveling/spending nights away from home at least ten days, or one month out of the year for work purposes. The other family members were characterized by their association to the commuter, primarily as the at-home spouse and/or child. Each person completed a detailed survey about the positive
and negative aspects of their position and how they deal with the constantly changing environment in their home. Surveys and data were collected in person, on-line, and over the phone with a total of 123 commuters and 86 at-home spouses. Previous research by Sharon Ervin Johnson (1986) found that families cope with commuting lifestyles successfully by encouraging adaptability and spending quality time together. Couples stressed the importance of mutual trust/support and that communication was key. We expect future research to provide similar results regarding communication in commuter marriages; that successful relationships between the commuter and spouse are supported by openness of emotion/understanding and the ability to communicate frequently and clearly.

**#185 12:00–1:30**

**Adapting Twain: Tom & Huck & Jim**

Kristen Nevarez, Theater Arts: General Studies (U)
D.J. Hopkins, Television, Theater and Film

The introduction of classic literature to children does not generally begin until halfway through the elementary education, and isn’t emphasized in the classroom until the pre-teens. Tom & Huck & Jim aims to give children a head start on their literary awareness by taking the stories, quotes and biography of Mark Twain and using the art of theatre to present it in an educational, yet engaging way. Director Margaret Larlham, composer Thomas Hodges, scripting assistant Kristen Nevarez and actors met together to synthesize the information and entertainment using the mediums of music, puppets, dance, and dialogue. This sensory spectacle takes the serious subject matter discussed in Twain’s The Adventures of Huckleberry Finn, such as racism and slavery, and communicates them so children can see both the history and the current impact. Partnering with local elementary schools has allowed this production to have to ability to fully reach its target audience upon its completion. While still in rehearsals, the team has finalized a full length play to be produced in March 2010 and celebrate the centennial anniversary of author Samuel Clemens.

**#186 12:30–2:00**

**Diel Cycling Effects on Iron Uptake Pathways in Marinobacter Algicola and Impact on Mutualistic Phytoplankton**

Ariel Romano, Chemistry (U)
Carl Carrano, Chemistry

Phytoplankton are considered the base of the marine food web, in addition to influencing climate by drawing down carbon dioxide in photosynthesis. Most microalgal species co-exist with diverse groups of bacteria, sometimes exhibiting symbiotic, mutualistic or parasitic behavior. However, the extent of these interactions and associations are unknown. One potentially important factor in bacterial-algal interactions is the micronutrient iron, since it is a required element for the growth of both groups of organisms but its bioavailability is limited in large areas of the ocean due to its poor solubility and complexation by organic ligands. By releasing low molecular weight iron-chelating ligands, known as siderophores, many species of heterotrophic bacteria can cope with this iron limitation. Previously, we have shown that algal-associated bacteria, especially those belonging to the Marinobacter genus, release the siderophore, vibrioferrin (VF) under iron limitation. The Fe-VF complex undergoes a photochemical reaction that generates a soluble, bioavailable form of iron to the algal partner potentially in exchange for the release of carbon-rich compounds from the phytoplankton that support bacterial growth. Using reverse transcription PCR (RT-PCR) we examined the effects of diel cycles on differential expression of iron uptake genes of *M. algicola*. Our results suggest that VF-producing species adopt contrasting iron uptake pathways regulated by light which may have important ecological consequences with respect to their adopting a free-living vs. algal associated life style.

**#187 12:30–2:00**

**Preliminary Studies on Optimized Nanoparticle Vaccines for Prostate Cancer**

Andrea Rodriguez, Chemistry and Biochemistry (U)
Douglas Grotjahn, Chemistry and Biochemistry

Cytotoxic T Lymphocytes (CTL) are among the most effective elements of the immune system, which can generate anti-tumor responses. In this pilot project focused on developing effective immunotherapy for prostate cancer, we synthesize, design, and characterize CTL-inducing nanoparticle-based vaccines.
containing tumor antigen-derived peptides. Nanoparticle (NP) vaccines offer possibility to tailor properties of the material. In our project, we look to intensify immune responses further by making mannosylated NP and targeting dendritic cells’ mannos receptors. NP were made,1 and their morphology and zeta potential determined. We showed available mannos on NP using ConA labeled with a fluorescent marker FITC. We synthesized the reagent, p-isothiocyanato a-D-mannopyranoside, and verified the configuration of a key intermediate by X-ray diffraction to produce mannosylated Bovine Serum Albumin (mann-BSA). We compared our mann-BSA to commercially available Sigma mann-BSA using MALDI-TOF. Future work will submit our synthesized mann-BSA to further tests and future studies.

#188 12:30–2:00

Controlling Microfluidic Segmented Flow For Coaxial Injections

Devin Wakefield, Chemistry (U)
Christopher Harrison, Chemistry

Microfluidic systems have gained significant interest recently due to their ability to form and manipulate droplets within microchannels. Fractioning, or segmenting, chemical components into discrete droplets has provided significant benefits: reaction timescales can be controlled from milliseconds to days; dispersion as a result of movement and diffusion is eliminated; sample consumption is minimized; and since reagents are encapsulated within droplets, no cross-contamination of reaction conditions occur. The microfluidic system described in this work focuses on the coaxial transport and injection of aqueous droplets along and into a fused silica capillary. The aqueous droplets are segmented by an immiscible perfluorocarbon (PFC) solvent before being pumped along a length of capillary tubing. The injection of analytes from the droplets into the capillary is accomplished through the use of a microdialysis membrane joining two ends of a fractured capillary. The current work focuses on the development of the microfluidic injection system and modifications necessary in maintaining segmented droplet flow throughout the coaxial transport along the capillary and the injection membrane. Aspects crucial to preserving this flow have been found to include the hydrophobic/hydrophilic characteristic of the capillary surface, tubing diameters, and linear fluid flow rates. The objective of this microfluidic system is to function in-line with capillary electrophoresis (CE). Pairing the microfluidic system with CE will allow for the rapid injection and analysis of time-dependent, biologically important molecules, such as neurotransmitters and other compounds released into the extra-cellular medium.

#189 12:30–2:00

Multi-Photon Laser Wave-Mixing Absorption Spectroscopy for Biomedical Applications

Ashley Warren, Chemistry (U)
William Tong, Chemistry

Multi-photon nonlinear laser wave-mixing spectroscopy is presented as a highly sensitive optical absorption detection technique for a wide range of biomedical applications. Laser wave mixing offers important inherent advantages as compared to conventional optical detection methods including parts-per-quadrillion or zeptomole level detection sensitivity, small sample requirements, compact portable overall designs, and high spatial resolution that is suitable for single-cell analysis. The wave-mixing signal has a quadratic dependence on analyte concentration, and hence, it is an effective detection method for monitoring small changes in sensor applications. The signal has a cubic dependence on laser power, and hence, the detection system efficiently uses low power levels available from compact solid-state lasers. A wide range of biomolecules (proteins, single bio cells, etc.) can be introduced, separated and detected inside a 50 µm capillary in which the two input laser excitation beams are focused and mixed to generate the wave-mixing signal beam. Advantages over widely popular fluorescence-based detection methods include better detection sensitivity levels with or without using fluorescence tags or labels and wave mixing can detect many biomolecules in their native forms.

#190 12:30–2:00

Design of Metal Organic Frameworks from Corroles

Daryl Hawkes, Chemistry (U)
Laurance Beauvais, Chemistry

The purpose of my research is to create metal organic frameworks from a starting corrole. I started out attempting to synthesize a porphyrin material from the corrole. From there I will try different types of methods to analyze the functions of the porphyrin. These metal organic frameworks are being probed for their ability to bind gases and catalyze reactions.

#191 12:30–2:00

Sensitive Nonlinear Multi-Photon Laser-Based Detection of Trace-Concentration Analytes

Jorge Jimenez, Chemistry (U)
William Tong, Department of Chemistry and Biochemistry

Nonlinear multi-photon laser wave-mixing spectroscopy is presented as an unusually sensitive optical absorption-based detection method for trace-concentration analytes in widely available flow cells. Laser wave-mixing spectroscopy offers inherent advantages including excellent detection sensitivity levels even
Mechanism of TBP Recruitment to the TATA-less U1 Promoter

Jinjoo Kang, Chemistry & Biochemistry (M)
William Stumph, Chemistry & Biochemistry

Transcription of Drosophila U1 or U6 snRNAs by RNA polymerases II and III respectively requires a conserved DNA promoter sequence termed the proximal sequence element A (PSEA), which is recognized by DmSNAPc, a multi-protein complex. Interestingly, the RNA polymerase specificity of Drosophila snRNA genes is determined by only five base pairs differences between the U1 and U6 gene PSEAs. Considerable work in our lab has demonstrated that DmSNAPc binds to a U1 PSEA in a different conformation compared to when it binds to U6 PSEA. Further work suggests that DmSNAPc, when it binds to a U1 PSEA, recruits the TATA-binding protein (TBP) to the TATA-less U1 promoter. Finally, we believe that TBP interacts specifically with the PSEB, a second conserved non-TATA element in the U1 promoter. My work is designed to gather evidence to support these hypotheses. TBP was co-overexpressed in Drosophila tissue culture cells together with the three protein subunits of DmSNAPc. The 6X His–tagged TBP and DmSNAPc were co-purified by Ni²⁺ column affinity chromatography. When used in a band-shift assay with wild-type U1 promoter DNA, two shifted bands were observed. Both bands could be supershifted with antibodies against DmSNAPc, but only the upper band was supershifted by antibodies against TBP. No shifted bands were observed with TBP alone in the absence if DmSNAPc. Because both DmSNAPc and TBP were present in the upper band, these results suggest that DmSNAPc can recruit TBP to the U1 promoter. To gain further insight into whether TBP interacts directly with the PSEB, DNA probes were prepared that contained either a mutant PSEB or a TATA element replacing the PSEB. When the PSEB was mutated, the upper TBP-containing band was significantly decreased. However, the upper band was increased when the PSEB was changed to a TATA sequence. These results suggest that TBP may directly interact with the PSEB. My results indicate that DmSNAPc is involved in the recruitment of TBP to the TATA-less U1 promoter, and that the PSEB stabilizes the recruitment of complexes that contain both DmSNAPc and TBP.
#194 12:30–2:00

**Very Strong Redox-Dependent Hydrogen Bonding between a bis-Dimethylaminophenylurea and a Cyclic Diamide**

Karina Kangas, Chemistry (U)
Diane Smith, Chemistry & Biochemistry Department

It has been shown that it is possible to selectively and significantly perturb the strength of hydrogen bonding between organic molecules with electrochemistry. Using cyclic voltammetry, we have studied the electroactive urea bis-dimethylaminophenyl derivative, U, which can undergo two reversible oxidations. Addition of a cyclic diamide guest to U shifts the oxidations negative. The maximum shift of the second oxidation is reached with 1 equivalent of the non-ionic guest and points to very strong hydrogen bonding. Taking the negative shift into account, we can quantitatively estimate the increase in binding strength upon oxidation of U. This calculation shows that the hydrogen bonding between the guest and U2+ is more than 1 x 105 times greater than with the neutral U. We are attempting to simulate the CV’s as well as perform NMR titrations to gain a better estimate of the magnitude of binding constants. Also, computational methods are used to better understand the hydrogen bonding using a combination of density functional theory (DFT) with a correlation consistent polarized valence double zeta (cc-pvdz) basis set.

#195 12:30–2:00

**Characterization of Novel Proteins Involved in Binding to the Protein Shc**

Spencer Swarts, Chemistry (M)
Peter van der Geer, Chemistry and Biochemistry

Signal transduction within an organism typically involves the binding of an extra-cellular ligand to a transmembrane receptor. This binding produces a conformational change in the intracellular domain of the receptor, which initiates a cascade of events that culminates in changes in biochemistry, cell biology, and gene transcription within the cell. Shc, a protein known to interact with activated receptor protein-tyrosine kinases, provides receptors with additional tyrosine phosphorylation sites and protein-protein interaction domains. Proteins that function in this manner are termed “adapter proteins”, and Shc is one of many required for successful signal transduction. Recently, we have shown that Shc interacts with a number of proteins, one of which we identified as STS-1 (Suppressor of T-cell Receptor Signaling). STS-1 is a 70 kDa protein composed of four domains; an amino-terminal UBA domain (Ubiquitin Associated), a central 2HPE domain (2-histidine phosphoesterase), an SH3 domain, and a carboxy-terminal PGM domain (phosphoglycerate mutase). Our results indicate that STS-1 binds to Tyr 317 in a phosphotyrosine dependent manner. To determine how STS-1 binds to Shc, we mutated essential residues in each of the four domains to create mutant proteins that each are defective in one of the four domains. These mutants were expressed by transient transfection in 293 cells and tested for their ability to bind to the Tyr 317 phosphorylation site. Our results suggest that the 2HPE domain is essential for the interaction. Although it is a daunting challenge to elucidate signal transduction pathways, it will give us insight into the regulation of a multitude of biochemical and cell biological processes. This will lead to an increase in our understanding of normal cellular physiology and, perhaps more importantly, it will help us understand how defects in signal transduction contribute to the onset of diseases.

#196 12:30–2:00

**Synthesis of Sansalvamide A Derivatives and Cytotoxicity in Cancer Cell Lines**

Jenna Oelrich, Chemistry (U)
Shelli McAlpine, Chemistry

“The natural marine product Sansalvamide A (San A) is a macrocyclic pentapeptide that possesses anti-cancer activity at low micromolar concentrations against a number of cancer cell lines. San A derivatives have shown to be particularly effective against pancreatic cancer cell lines PL-45 and BxPC-3 by binding to Heat Shock Protein 90 (Hsp90) and inducing programmed cell death, (i.e. apoptosis). Hsp90 is one of the most abundant proteins expressed in human cells, and is over expressed in many cancer cells. Thus, our laboratory is synthesizing derivatives based on the San A macrocyclic scaffold to further increase Hsp90 binding and induce apoptosis. The Sansalvamide A derivatives are synthesized following a well-established solid phase peptide synthesis protocol. We will discuss the newest generation of derivatives that have shown potency against pancreatic cancer cell lines and their rational design based on other promising compounds.

#197 12:30–2:00

**Utilizing a “Chiron Approach” in the Total Synthesis of Azaspirene, A Powerful Inhibitor of Angiogenesis**

Jerry Almazan, Chemistry (U)
Mikael Bergdahl, Chemistry

Background and Significance: Unfortunately many medications against cancer are successful at first, but many side effects strike patients and its effectiveness diminishes as cells begin to mutate into resistant cells. There is however an alternative to milder type of chemotherapy, the utilization of angiogenesis inhibitors, particularly azaspirene. While conventional chemotherapy many times pulverizes the cancer cells (for instance radiation) azaspirene is remarkable in that it prevents the nutrition to...
reach the tumor cells. Specifically, azaspirene blocks the unique chemical signal sent out by tumors to attract more blood cells, but does not inhibit other healthy red blood cell growth in the body involved in blood vessel growth and wound repair. The result will be that the cancer cells will begin to starve and consequently their growth will be inhibited. Knowledge about the biological properties of azaspirene in cancer-biology will help provide clues for the future generation of anti-cancer drugs for battling severe types of cancer. Methods: Our synthetic methods used are based upon a “Chiron approach”, a strategy which utilizes the appreciation of chiral inexpensive molecules available from nature. Since we have identified these chiral building blocks, the total synthesis is thereby greatly simplified and economically viable compared to other reported synthetic studies toward the azaspirene and its pseurotin family. Results: A novel approach will be presented using L-tartaric acid and/or D-malic acid as substrates. The presented procedure allows us to initiate the synthesis with most of the oxygen atoms already contained within the molecule and evidently reduces the need to do oxidation reactions to create the highly oxygenated molecule of azaspirene.

Session B-7
Poster: Geosciences
Friday, March 5, 2010, 11:30 am – 2:00 pm
Location: Montezuma Hall South

#198 11:30–1:00
A Seawater-derived Uranium Signature and Possible Mechanisms of Crustal Contamination in Loihi Seamount Gasses
Matthew Keyes, Geochemistry (U)
Aaron Pietruszka, Geological Science

Excesses of 234U relative to 238U (up to ~1%) have been discovered in fresh volcanic glasses erupted from Loihi Seamount using high-precision MC-ICP-MS techniques. Mantle-derived basaltic lavas are expected to be in radioactive equilibrium for 234U and 238U upon eruption. In contrast, seawater has ~14% excess 234U, and thus, represents the most likely cause of the observed 234U-238U disequilibrium. The origin of the seawater 234U signature is unclear. The main purpose of this study is to try to determine if the seawater 234U signature is related to crustal contamination with seawater-altered rocks surrounding Loihi’s magma chamber or if it represents contamination of the glass surface due to interaction with seawater during or after eruption. To test these possibilities, eight Loihi glass samples with a range of (234U/238U) ratios (previously analyzed for their 234U-238U disequilibria with only a brief cleaning in 2M HCl) were treated with a multi-step leaching process (6M HCl, 0.5M oxalic acid-2% H2O2, and 1M HCl-2% H2O2). In most cases, the (234U/238U) ratios of the strongly leached samples are similar to the previous unleached analyses. Thus, the leaching procedure failed to remove the excess 234U from the samples. This observation suggests that the 234U addition most likely occurred during crustal contamination of the magma with seawater-altered rocks. A mixing calculation between the (234U/238U) and 87Sr/86Sr ratios of seawater and a range of uncontaminated Loihi magmas can be used to further test this possibility. This calculation shows that bulk addition of seawater cannot explain the low 87Sr/86Sr ratios of the contaminated Loihi lavas. Instead, U must be preferentially enriched in the seawater-altered rocks prior to crustal contamination. This might be possible if seawater percolating downward towards the country rock surrounding the magma chamber encounters more reducing conditions (possibly due to the presence of magmatic H2S), and U (unlike the fixed valence, alkaline earth element, Sr) might precipitate if it is reduced from the soluble +6 state to the more insoluble +4 state.

#199 11:30–1:00
New Insight into the Greater Caucasus Mountain Range Fold-Thrust Belt
Christopher Binter, Geological Science (U)
Robert Mellors, Geological Science

The Caucasus-Caspian region is an area of frequent seismic activity. This is due to the collision of the Arabian and Eurasian plates that produce constant earthquakes throughout the region. Accurate determination of earthquake hypocenters is important to understanding the tectonics of the area as well as the potential seismic hazards. The standard method of earthquake location relies on generalized velocity models to locate earthquakes. For most instances this method is appropriate, however in areas with strong local velocity heterogeneities such as the Caucasus this can cause hypocenters to be inaccurately placed. To reduce scatter in hypocenter determination, the double-difference algorithm of Waldhauser and Ellsworth (2000) is tested. This method locates earthquakes in clusters and seeks to improve the relative location of events rather than the absolute location. In this way active fault planes become more apparent because greater emphasis is placed on accurately placing hypocenters relative to each other. Through the use of this double difference method I will evaluate if the Greater Caucasus mountain range fold-thrust belt is thin (involving only the sedimentary cover) or thick skinned (including basement) in nature. Thin-skinned thrust faults dip at low angles (< 35 degrees) while thick skin thrust typically possess dips of 35-45 degrees. Currently I am determining the accuracy and precision of the double-difference algorithm and its ability to provide new information on the Greater Caucasus mountain range fold-thrust belt.
**Abstr Acts**

**Session B-8**

**Oral Presentation: Developmental Biology**

Friday, March 5, 2010, 1:00 pm

Location: Backdoor

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**#200 11:30–1:00**

**Investigation of Non-horizontal Interfaces on Receiver Functions**

Rumi Takedatsu, Geophysics (M)

Robert Mellors, Geological Science

The boundary between the crust and upper mantle, often referred to as the Mohorovicic discontinuity or Moho, marks a significant increase in seismic velocity. Numerous studies show that the depth of Moho varies through the world and is related to tectonic setting. One way to estimate Moho depth is by using “receiver functions”. This commonly used technique estimates crustal thicknesses by identifying P-to-S converted seismic waves at the Moho. When P waves from distant earthquakes encounter the crust/mantle interface from below, some of the P wave energy is converted to S waves. These P and converted S waves then travel from the Moho to the surface, but at different velocities. Therefore, measuring the arrival time difference between the P and S waves together with the average crustal velocity will give an estimate of the crustal thickness. Unfortunately, the average crustal velocity is usually poorly known and various methods are used to estimate crustal thickness and velocities. Most of these methods assume a horizontal interface. In this study, we focus on the effect and possible bias caused by non-horizontal Moho. A model with a non-horizontal Moho is constructed and synthetic receiver functions are calculated using a 2D finite-difference algorithm. Initial results show that a non-horizontal Moho causes significant differences in relative arrival time difference between the P and converted S waves and in relative P and S wave amplitudes. We also test the effects of a dipping interface on estimates provided by commonly used algorithm which solves for both crustal thickness and average S wave velocity for a flat Moho using a combination of grid search and stacking (Zhu and Kanamori, 2000). We will apply these theoretical results to observed seismic data from Azerbaijan to investigate the possibility of a dipping Moho under the region.

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**#201 1:00**

**In-situ, Uninterrupted Measurements of Stable Oxygen and Hydrogen Isotope Ratios of Atmospheric Water Vapor in the Marine Boundary Layer**

Joshua Rambo, Biology (U)

Chun-Ta Lai, Biology

Stable oxygen and hydrogen isotope ratio analysis provide insights into eco-hydrological research. The phase change of water associated with evaporation and condensation accounts for the most notable changes in its isotopic composition. This results in a predictable spatial pattern of the oxygen and hydrogen isotope ratios in precipitation around the globe. However, our ability to take advantage of these isotopic signals as tracers and environmental predictors is hampered by the lack of uninterrupted water vapor isotope measurements. Conventional methods for vapor isotope measurements require a cryogenic trapping, which limits the number of samples collected in the field. Optical spectroscopy techniques offer near continuous measurements of water vapor isotopes, providing new opportunities for the investigation of land-atmosphere gas exchange from the local to global scales. The goal of the proposed research is to understand the controlling mechanisms of critical processes that influence the isotopic composition of water vapor in the marine boundary layer. We installed and field-tested an optical water vapor isotope analyzer at the Scripps Pier, La Jolla, CA in the summer of 2009. A dew-point generator allows a temperature-dependent equilibrium between vapor and water, providing a vapor stream of known isotopic composition which was used to calibrate the water vapor isotope analyzer. We also cryogenically collected water vapor samples for stable isotope ratio determination in the laboratory. Good agreement was found between the in-situ measurements and results from the trapped samples. Initial analysis suggests that variations in the observed isotope ratios of water vapor correlate with the ocean surface temperature. Suggestions to improve the instrument stability are also discussed.
antiapoptotic signaling in the nucleus. Many cardiotoxic treatments have been demonstrated to induce nucleolar disruption followed by activation of p53 pathway in non-myocytes cells. This proposal aims to investigate the contribution of nucleolar stress to cardiomyopathic damage. The role of NS and NPM will be addressed under normal and stress conditions both in vivo and in vitro using mouse models of cardioprotection, cultured cardiomyocytes and cardiac progenitor cell lines derived from mice and humans. The specific aims of this proposal test the following hypotheses: 1) NS and NPM are sensors of stress mediated by cardiotoxic agents. 2) NS and NPM have a protective role against nucleolar stress in vitro and in vivo. 3) Nucleolar stress, antagonize proliferation and increase senescence of mouse and human CPCs. The innovative aspect of this proposal is represented by the fact that the phenomenon herein proposed has never been directly addressed in the cardiac setting. Therefore the high risk of this proposal is inherent in the innovation of the hypothesis: 1) Direct in vivo demonstration of nucleolar stress could be challenging by the fact that NS and NPM are minimally expressed in the adult heart. 2) Some stress-induced cardiomyopathy could be independent of nucleolar stress. 3) The protective role of NS has never been directly addressed in any cellular models and it can be only deduced by indirect observations. The significance of the proposal is the delineation of a new mechanisms controlling stress response mediated by p53 and will provide important understanding of the molecular basis for the unique qualities of nuclear Akt signaling. The impact of the proposal is the identification of molecular interventional targets that will prove useful to mitigate drugs-mediated cardiotoxicity and improve myocardial survival, proliferation, and repair, thereby enhancing current therapeutic strategies to promote myocardial salvage, repair, and regeneration.

#203 1:30
Nucleostemin and Nucleophosmin in Cardiac Protection and Regeneration
Aryan Zarrabi, Biology (U)
Mark Sussman, Biology

Beside its main function in governing ribosomal biogenesis, many growing body of evidence suggests that the nucleolus acts as a sensor of stress in the cell. Our group demonstrated that the nucleolar protein nucleostemin (NS) is induced in adult cardiomyocytes following acute or chronic myocardial damage, with NS expression increased by the cardioprotective signaling. NS interacts with multiple proteins including p53, MDM2 and the nucleolar protein nucleophosmin (NPM). NPM is protective in response to cellular stress in non-myocytes and partners with AKT to mediate antiapoptotic signaling in the nucleus. Many cardiotoxic treatments have been demonstrated to induce nucleolar disruption followed by activation of p53 pathway in non-myocytes cells. This proposal aims to investigate the contribution of nucleolar stress to cardiomyopathic damage. The role of NS and NPM will be addressed under normal and stress conditions both in vivo and in vitro using mouse models of cardioprotection, cultured cardiomyocytes and cardiac progenitor cell lines derived from mice and humans. The specific aims of this proposal test the following hypotheses: 1) NS and NPM are sensors of stress mediated by cardiotoxic agents. 2) NS and NPM have a protective role against nucleolar stress in vitro and in vivo. 3) Nucleolar stress, antagonize proliferation and increase senescence of mouse and human CPCs. The innovative aspect of this proposal is represented by the fact that the phenomenon herein proposed has never been directly addressed in the cardiac setting. Therefore the high risk of this proposal is inherent in the innovation of the hypothesis: 1) Direct in vivo demonstration of nucleolar stress could be challenging by the fact that NS and NPM are minimally expressed in the adult heart. 2) Some stress-induced cardiomyopathy could be independent of nucleolar stress. 3) The protective role of NS has never been directly addressed in any cellular models and it can be only deduced by indirect observations. The significance of the proposal is the delineation of a new mechanisms controlling stress response mediated by p53 and will provide important understanding of the molecular basis for the unique qualities of nuclear Akt signaling. The impact of the proposal is the identification of molecular interventional targets that will prove useful to mitigate drugs-mediated cardiotoxicity and improve myocardial survival, proliferation, and repair, thereby enhancing current therapeutic strategies to promote myocardial salvage, repair, and regeneration.

#204 1:45
The Response of Echinopluteus Larvae of Dendraster excentricus to Haloclines Varies with Larval Age and Maternal Effects
Alexandria Warnke, Marine Biology (U)
Brian Hentschel, Biology

How marine invertebrate larvae alter their position in the water column in response to physical and chemical stimuli is poorly understood. We measured the vertical distribution of sand dollar larvae in laboratory haloclines, testing for differences among larvae spawned from different mothers and for changes as larvae grew over 19 days. Larvae from three mothers were cultured on
#206 1:15
Maania Rasooli, Political Science (U)  
Madhavi McCall, Political Science

“In the last fifty years the judicial bench across the United States has experienced an exponential growth in diversity. The changing face of the judiciary has instigated much debate within the scholarly community about the impact of a judge's races may have on their judicial decisions. Indeed, although there is a great deal of academic literature on the topic, most of it is normative and calls for a diverse bench without evaluating if that diversity results in substantive policy differences and judicial decisions. The empirical literature is severely limited in this arena, and the little research available has consorted all racial minorities together as one when evaluating judicial decision making patterns in comparison to Caucasian judges. Therefore the lack of empirical data on this subject matter begs the question of just how race as an identity may influence judicial rulings or how significant or insignificant these differences may be. In this paper, I evaluate the importance of a judge’s of race to the judicial decision making process by interviewing African American and Caucasian State and Federal judges. I use the accounts of ten African American and ten Caucasian judges to assess the level of significance race plays in the judicial ruling process. Given my results thus far, the behavior patterns exhibited indicate a greater significance in racial differences than current empirical data suggest.”

#207 1:30
Discrepancies between Implicit and Explicit Self-concepts: Examining their Relations to Academic Motivation and Performance
Jessica Winet, Psychology (U)  
Thierry Devos, Psychology

Past research has documented a conflict for women between traditional roles of motherhood and achieving a post secondary education, titled the double bind theory (Niemann, Romero, & Arbona, 2000). Furthermore, it has been shown that women pursuing a college education identify more strongly with the academic domain (than with familial aspirations) at an explicit (conscious or deliberate) level, but they display a stronger identification with familial aspirations (than with the academic domain) when conscious control is relatively unavailable (implicit level) (Devos, Diaz, Viera, & Dunn, 2007). The goal of the present research was to replicate these findings of implicit and explicit discrepancies of women’s identities, and to further explore the
potential implications these discrepancies may have on academic motivation and performance. We hypothesized that women's level of discrepant identities will be negatively correlated with academic motivation and performance. Thus, the wider the discrepancy a woman has between her implicit and explicit self-concepts, the lower her academic motivation and performance will be. Additionally, we predicted that the relation between identity discrepancies and academic motivation and performance is mediated by a depletion in psychological resources.

Participants were 138 female undergraduate students attending San Diego State University. Participants were asked to complete an Implicit Association Test as well as explicit measures assessing participants' identification with the concepts “college education” and “parenthood.” Participants were then asked to complete a series of self-report measures assessing their level of optimism, coping, self-esteem, academic motivation, and achievement motivation. Lastly, participants were asked to grant permission to the researchers to access their academic transcripts. Results replicated previous research in that mean levels of identification with the concept “college education” and “parenthood” documented a discrepancy between explicit and implicit self-knowledge. Regression analyses will be used to test whether implicit-explicit discrepancies account for a depletion in psychological resources and lower academic motivation and performance. This study is an important step toward a better understanding of the cognitive, motivational, and behavioral correlates of discrepant identities among women pursuing a college education.

#208 1:45

Diverse Environments: Enough to Induce Implicit Multiculturalism?

Hafsa Mohamed, Psychology (U)
Thierry Devos, Psychology

Despite the growing diversity in the U.S., research shows that European Americans as a group are seen as more American than any other ethnic group (American=White effect, Devos & Banaji, 2005). Multiculturalism, or the idea that group differences and memberships should not only be acknowledged and considered but also celebrated, has been shown to produce positive outcomes with regards to implicit and explicit racial attitudes (Richeson & Nussbaum, 2004). The current study specifically examined whether placing individuals in a complex environment where distinctions are harder to reduce to a majority-minority dichotomy would reduce the American=White bias. We hypothesized that the tendency to associate the concept American more strongly with European Americans than with Asian Americans would decrease as the complexity and diversity of the social environment increases. One hundred and twenty five participants completed a Brief Implicit Association Test (Sriram & Greenwald, 2009) in which they were asked to categorize as quickly as possible pictures of individuals based on their ethnicity (e.g., African, Asian, Latino or European American) and American or foreign symbols. Participants were randomly assigned to one of four conditions. The number of ethnic groups salient was manipulated using a between subjects design and therefore, the Brief IAT required participants to make distinctions either between two, three, or four ethnic groups. Response latencies were measured to assess the strength of the associations between the concept American and the target ethnic groups. In line with past research, the concept American was more strongly associated with European Americans than with Asian Americans. As predicted, the magnitude of this effect varied as a function of the experimental condition. More precisely, the effect became non significant when the four major ethnic groups in the U.S. were made salient in the task. These findings suggest that inserting people into complex and diverse social environments can help reduce the tendency to equate being American with being White and foster a more inclusive definition of the American identity. This research was funded by the NIGMS, NIH Grant 2R25GM058906-09A2.

#209 2:00

Racial Profiles of Autism and Mental Retardation

Jennifer Inaba, Counseling and School Psychology (M)
Valerie Cook-Morales, Counseling and School Psychology

Over the past several decades, there has been a dramatic increase in the prevalence of autism. Some researchers contend that this may be explained by classification substitution; that is, an increase in autism is due to a decrease in students identified with mental retardation (MR). However, researchers have failed to attend to the importance that race may have as a variable. Culturally diverse students are disproportionately represented in school-identified disabilities, especially in categories having subjective criteria (e.g., MR, learning disabilities, emotional disturbance). The identification of autism is similarly subjective and relies on professional judgment. These perceptions may be influenced by historical profiles of these developmental disabilities: Autism was once considered a white upper middle class disability and African American students have been overrepresented as having MR. Appropriate differentiation of these disabilities is important because students with autism have more access to services, funding, and inclusion in general education classrooms than students with MR. Thus, I focused on exploring the racial
patterns in the identification of MR and autism. California was selected as a case study because: (a) our students comprise approximately one-eighth of the nation’s students and (b) we have the most diverse students in the nation. Special education enrollment data by race and disability were used to calculate risk indices of MR and autism by race and risk ratios within each race. Risk ratios within race were tracked across nine school years. I found racial profiles across the categories of MR and autism. Autism is more common among the racial groups—White, Filipino, and Asian—that have often benefited in the schools. The groups that have often been overrepresented in special education—American Indian, Pacific Islander, Hispanic, and African American—are receiving the less favorable label of MR at a higher rate than autism. Because there is no evidence that any race is inherently susceptible to either disability, each race should have been represented similarly. This study is the first that examines the ratios of autism to MR by race and highlights the need for further research. Implications for professionals are also made, including examination of our unintentional biases.

Session B-10
Oral Presentation: Astronomy
Friday, March 5, 2010, 1:00 pm
Location: Casa Real

#210 1:00
Distances to Core-Collapse SuperNovae using the Expanding Photosphere Method
Jesus Enriquez, Astronomy (M)
Douglas Leonard, Astronomy

When stars with more than 8 times the mass our sun reach the ends of their lives they expand to become red giant stars. This is followed by a contraction of their cores that makes the stars explode. This explosion is called a Core-Collapse Supernova (SN). A subset of these explosions is called Type II-P. This kind of SN is characterized by having a constant brightness for around 100 days, and by showing hydrogen in its spectrum. In this work, we use the Expanding Photosphere Method (EPM) to calculate distances to several Type II-P supernovae. The EPM method compares the observed size of a SN with a theoretical estimation; through this comparison the distance to the supernova is derived. Here, we compare distances calculated through the EPM to a set of Type II-P supernovae with distances derived by Poznansky et al. (2009) using a different technique.

#211 1:15
The Effect of Starspots on Exoplanet Transit Observations
Shimonee Kadakia, Astronomy (M)
William Welsh, Astronomy

Since 1995, over 400 planets outside of our solar system have been discovered. Due to their vast distances, these exoplanets are generally not detected by direct imaging, but rather through indirect means. One method is to observe the change in the star’s brightness as the planet crosses, or “transits”, the star. I present an atlas of simulated transits, in which the parent star has starspots. Starspots are equivalent to sunspots, but located on other stars. Since starspots are common and can strongly influence the transit shape, ignoring starspots can lead to erroneous conclusions. I discuss how starspots alter the light curves and radial velocity curves of transits. I present expressions for the their shape, which depends on the relative sizes and temperatures of the star, planet, and spot. I model the modifications due to a planet occulting a starspot and focus on the Rossiter-McLaughlin effect, the temporary blockage of the blue or redshifted side of the star during a transit.”

#212 1:30
New Observations and Neutron Star Mass for the X-ray Binary 4U 1538-52
Meredith Rawls, Astronomy (M)
Jerome Orosz, Astronomy

We present a new mass for the neutron star in the X-ray pulsar binary 4U 1538-52. Following the approach in van der Meer et al. (2007, A&A, 473, 523) we use high resolution spectral data taken in July and August 2009 to obtain an improved radial velocity measurement for the optical companion. We also create an optical light curve from BVI images taken in June–September 2009 to confirm the system’s eccentricity and provide the companion star’s Roche lobe filling factor. These parameters together with the previously determined orbital period, duration of the X-ray eclipse, and projected semimajor axis of the pulsar’s orbit can be combined to yield the masses of both stars. We use an exact numerical code based on Roche geometry and a genetic optimizer to accomplish this. Our technique can be applied to other X-ray pulsar systems as new observations are made. This research is supported in part by the National Science Foundation Grant AST-0808145.
**#213 1:45**  
**The Standardizability of Type Ia Supernovae in the Infrared.**  
ShiAnne Kattner, Astronomy (M)  
Douglas Leonard, Astronomy  

The Carnegie Supernova Project (CSP) is a 5 year program to obtain well-calibrated data sets of optical and Near-IR (NIR) light curves and spectrophotometry of 250 supernovae (SNe) of all types. In the NIR, Type Ia SNe have a primary maximum in flux that typically occurs three days prior to B-band maximum. Therefore, many of these SNe’s maxima are not caught by the observations. However, one way to indirectly determine the NIR maximum of a SN is to use light-curve templates derived from more completely observed examples. Currently the best NIR SNe light-curve templates are produced using only a small number of SNe. We have constructed light-curve templates (using the Supernova Object Oriented Python (SNOOPy) script) from 24 SNe in the YJH bands, which is more than double that of previous studies. Our 24 SNe all come from the CSP and all have excellent optical light curves and well defined NIR light-curves. These templates may be used to estimate the apparent magnitude at maximum, which can then be used to determine absolute magnitudes and show whether Type Ia SN are reliable standard candles in the NIR.

**#216 1:15**  
e-City Secure San Diego  
Kunal Bhatia, Computer Science (M)  

The Internet is the community of the future but if security measures are not put in place and enforced, then it will become more of a slum and less of a community. Security on the Internet is a very important issue in the world today. Billions of people have an on-ramp to the Information Superhighway, and more are finding one every day. The Internet transcends geographical locations, and is the first example of a true global village. Unfortunately for regular users of the Internet, much like the real world, criminals exist on the Internet as well. Hackers, the computer wizards, who use their knowledge for evil, are rampant on the Internet. Creating a virus is a little like that—it creates a bomb inside a computer. You should never double-click on an e-mail attachment that contains an executable. Attachments that come in as Word files (.DOC), spreadsheets (.XLS), images (.GIF), etc., are data
files and they can do no damage (noting the macro virus problem in Word and Excel documents mentioned above). However, some viruses can now come in through .JPG graphic file attachments. IP-Based Cyber Attack—Typical corporate networking security uses authentication, encryption, firewalls, routers, Virtual Local Area Networks (VLANs), access control lists, intrusion detection, and separate network segments to isolate a control system asset from the Internet. In order to access the control system, an attacker will need to gain access to one resource, compromise that resource, and use its permissions to attack the next component in the attack path. Vulnerabilities, Threats, Attacks, and Controls—A computer-based system has three separate but valuable components: hardware, software, and data. Each of these assets offers value to different members of the community affected by the system. To analyze security, we can brainstorm about the ways in which the system or its information can experience some kind of loss or harm. For example, we can identify data whose format or contents should be protected in some way. What Makes a Network Vulnerable—Anonymity, Many points of attack both targets and origins, Sharing, Complexity of system, Unknown perimeter, Unknown path, also Malicious code-rootlets, web bugs, salami attacks, keyloggers, covert channels, amnion the middle attacks, Phishing, Bufferoverflow, Snooping, Masquarading, Denial of Service, Snake oil, Brute force, Rabbit, Spam, Botnet, Spyware, Honeypot, Eavesdropping—(Janus attack), (Bucket-brigade attack), OS vulnerabilities, Web application attacks, Client-side exploitation.

#217 1:30
Darshana Garach, Electrical Engineering (M)
Mahasweta Sarkar, Electrical Engineering

The wireless ad-hoc networks represent the next frontier in communications. They are self-organized, rapidly deployable and require no fixed infrastructure. The emergence and increasing popularity of real-time, delay critical applications such as voice and video have provided an impetus to focus research on the need to provide Quality-of-service (QoS) over ad-hoc networks. Performance of any wired or wireless network can be evaluated in terms of various parameters like power management, delay caused by the network, overhead bytes used in transmitting data, security etc. Most of the enhancement techniques for any such parameters target a layered approach of the OSI model, which was primarily created with a wired architecture in mind. Characteristics such as the absence of a central authority, links subject to multiple access, fading and interference as well as limited power availability exacerbate the variance of network conditions and bring greater challenges for multimedia delivery. This situation causes interdependencies across the network layers, unlike their wire-line counterparts. Most of the past efforts to improve the QoS over ad-hoc networks were focused on a layered approach with each layer being independently optimized for performance. Recent studies indicate that QoS over ad-hoc networks can be significantly improved using a cross-layer design. A protocol design by the violation of a reference layered communication architecture is called a cross-layer design with respect to the particular layered architecture. The focus of this thesis is to define a cross-layer function between the Application, MAC and the Physical layer for choosing an optimum rate-power combination for delay-sensitive data. The Application layer defines the delay constraint for the data to be sent. The Physical layer provides information regarding the channel conditions to the MAC layer. The MAC layer continuously monitors the data queue (backlog) and checks that data is pumped out of the transmitter before its delay limit. So, if the channel conditions are not favorable for transmission, the MAC layer alters the rate-power combination and assures the packet delivery by sacrificing more power, if needed. This scheme will provide delay efficiency for the data sent over ad-hoc networks.

#218 1:45
Fuzzy Logic Decision Making for an Intelligent Cooperative Multi-Robot Team that Maintains Security
Matthew Cross, Computer Science (M)
Mahmoud Tarokh, Computer Science

Intelligent robots may assist humans working in hazardous conditions or replace them entirely in especially dangerous situations. In such situations autonomous intelligent robot systems capable of deciding themselves long-term courses of action while remaining responsive to dynamic events may have an advantage over those that require continuous human interaction. Our approach uses fuzzy logic in the decision-making process of an autonomous intelligent multi-robot security system that maintains security in environments such as warehouses, factories, and laboratories.

#219 2:00
Optimization of Limited Precision Computation for the Decoding of Low Density Parity Check (LDPC) Codes
Raymond Moberly, Mathematics (D)
Michael O’Sullivan, Mathematics

The limited-precision implementation of the sum-product algorithm involves a trade-off between computational precision and computational speed; bits of precision improve coding gain but increase iteration latency. Our effort optimizes the use of limited precision for small numbers of bits. The sum-product algorithm has been the central focus of soft-decision decoding since Gallagher’s foundational work on Low Density Parity Check (LDPC) codes. This algorithm is also known outside of the signal...
processing community as Pearl’s belief propagation. An FPGA-based implementation offers the flexibility to perform computer algebra with significantly less precision than the standard (e.g. integer, floating-point) data types and operations of general purpose CPUs, it also permits the aggregation of computational operations.

**#220 2:15**

*Simulating the Dynamics of Bose–Einstein Condensates using the Computational Capability of NVIDIA Graphics Cards*

Ronald Caplan, Computational Science (D)
Ricardo Carretero, Math and Statistics

We describe our efforts to simulate the dynamics of ultra-cold bosonic atoms, in the new state of matter called Bose–Einstein Condensate (BEC), using the computational capabilities of NVIDIA graphics cards. Our goal is to exploit the massive parallelism of the graphics cards to greatly reduce the computation time required for the simulations. The graphics cards have the potential to speed up the simulations by a factor of over one hundred and are extremely cheap compared to CPU clusters. To accomplish this, we formulate high-order finite difference codes to integrate the Nonlinear Schrödinger Equation which, under some conditions, governs the meanfield dynamics of BECs. This code is then modified for use with NVIDIA graphics cards using an application programming interface called CUDA. We show very good speedup results for one dimensional simulations of BECs using CUDA, and discuss future plans for two and three dimensional simulations. We conclude that the advantages of using CUDA for simulating BECs is well worth the development time.

**Session B-12**

Oral Presentation: Computational Science and Biomedical Algorithms
Friday, March 5, 2010, 1:00 pm
Location: Chantico

**#221 1:00**

*Real-Time Metagenomics*

Daniel Cuevas, Computer Science (U)
Robert Edwards, Computer Science

Real-Time Metagenomics (RTMg) is a three-pronged project that delivers metagenome annotation services to biologists across several platforms. The first branch, RTMg.web, performs annotations of fasta-formatted DNA sequences within minutes. Mobile Metagenomics (RTMg.mob) delivers metagenome annotations to the Android cellphone platform for as-you-go analysis. Open social Metagenomics delivers the service to social networking sites for sharing data and analysis with colleagues and friends (RTMg.os). Using RTMg.web, the sensitivity and specificity of the instantaneous annotations provided by the real time server were compared to those generated by BLAST to reveal strengths and weaknesses of both approaches. RTMg.mob allows streaming data analysis with fully interruptible processes; users can take calls, browse the web, and send/receive SMS messages during annotation. The application implements the Android standard Share feature, which allows for users to email their data to other phone or computer users, and to access the data via RTMg.os. Open social metagenomics stores metagenome-annotated data on a server and allows users of the social network to access and share this information with their friends. All metagenome annotation and analysis has been designed in a portable, open, exchangeable format that allows the easy extension of the RTMg suite of applications with new tools as they become available.

**#222 1:15**

*Mapping Regulatory Elements of Autophagy Genes.*

Lena Van der Stap, Computational Science (M)
Roberta Gottlieb, BioScience Center

The autophagy pathway is critical for homeostasis, cell survival, cytoprotection, and regeneration. Evidence exists for transcriptional regulation of autophagy in the first few hours following stress or starvation. We hypothesize that composition, number and position of multiple TFBS are organized into distinctive clusters conserved among functionally related human autophagy gene promoter sequences. ULK1, ULK2, ATG2A, and B, ATG3, ATG4A,B,C,and D, ATG5, Becn1, ATG7, GABARAP, GABARAPL3, GABARAPL2/GATE16, MAP1LC3A,B,2, and C, ATG9A and B, ATG10, ATG12, ATG13, ATG16l1, ATG16l2, WIPI-1, -2, -3, and -4, and other promoters were analyzed with pattern detection and pattern matching algorithms. Comparisons of composition, number, and position of predicted TFBS within conserved regions in aligned human autophagy gene promoters identified distinctive patterns of TFBS clusters. Each gene’s upstream 2kb flanking sequence contained 129 to 600 TFBS of which 5-30 were conserved among subsets of autophagy genes. Sp1, c/EBP alpha, and NF1 binding sites were most abundant. Distinctive clusters identified were found to be shared by several autophagy gene promoters. In some cases, multiple instances of a cluster were present in a single gene. Clusters differed among subsets of autophagy genes, suggesting differential regulation of autophagy pathway components. Functional annotation and experimental confirmation of candidate transcription factors will allow us to predict pathways and physiological stimuli that affect autophagy gene transcription. This approach can inform gene expression and systems biology studies of autophagy.
#223 1:30

**Identification of Macrolide Resistance Alleles in Environmental Metagenomes**

Robert Schmieder, Computational Science (D)
Robert Edwards, Computer Science

Macrolide antibiotics target the 23S ribosomal RNA (rRNA) component of the ribosome and inhibit protein synthesis. In particular, they target the large subunit tunnel where they prevent the ribosome from tunneling the growing polypeptide out of the active site. Macrolides are composed of sugars attached to a lactone ring of variable size; the most commonly used macrolides are erythromycin (14-membered lactone ring) and tylosin (16-membered). The 23S rRNA gene consists of six conserved domains, and mutations causing resistance are typically located in domain II and within the peptidyl-transferase region in domain V. Methods: All sequences similar to 23S rRNA genes were identified from over 300 metagenomes, and then aligned using a global alignment. The bases at the alleles known to determine resistance to macrolides were used to calculate the frequency of sensitivity and resistance for each single metagenome. Results: A web site has been developed to allow the easy identification of antibiotic resistance alleles in metagenomes (http://edwards.sdsu.edu/robar/). Although several key positions in the 23S rRNA gene were invariant in all metagenomes, there were differences in the closely related 23S genes, and the coverage across those genes varied for each metagenome. Moreover, the presence of resistance alleles depended on the biome from which the metagenome was sampled, and also on the geographical separation within each biome.

#224 1:45

**A Random Forest Model for Classifying HIV-1 Proteins**

Gene Ko, Computational Science (D)
Sunil Kumar, Electrical and Computer Engineering

A model for the classification of 70 HIV-1 protease binding pocket structures to one of its complexed FDA approved protease inhibitors utilizing Random Forest has been developed. 456 chemical descriptors were computed from the binding pocket structures and are used to develop the classification model. Computer simulations were performed to determine the optimal Random Forest model parameters (mTree and mTry) with the lowest out-of-bag (OOB) classification error. Several models were created using the optimal Random Forest parameters, with the best model having an OOB classification error of 38.57%. An implicit feature relevance measure for each of the models was analyzed using the Gini importance measure. The chemical descriptors most influential in classifying the binding pocket of HIV-1 protease with its complexed protease inhibitor were found in each of the models. The top ranked descriptors have been analyzed to describe the interactions of the HIV-1 protease inhibitors with the protease protein. This study suggests the stability of Random Forest to always select for the same set of descriptors when using a large number of trees. In conclusion, Random Forest was found to have excellent classification performance for this highly underdetermined dataset by being able to consistently select for the most relevant chemical descriptors while ignoring irrelevant ones in its tree building process.

#225 2:00

**Image Processing Techniques for Assessing Contractility in Isolated Adult and Neonatal Cardiac Myocytes**

David Torres Barba, Computational Science (D)
Paul Paolini, Biology

We propose two computational frameworks for the assessment of contractile responses of enzymatically dissociated adult and neonatal cardiac myocytes. The proposed methodologies are variants of mathematically sound and computationally robust algorithms very well established in the image processing community. The computational pipeline for assessing contractility in adult cardiocytes comprises the following stages: digital video recording of the contracting cell, edge preserving total variation-based image smoothing, segmentation of the smoothed images, contour extraction from the segmented images, shape representation by Fourier descriptors, and contractility assessment. For assessing contractility of neonatal cardiocytes, the stages in the computational framework consist of digital video recording of the contracting cell, signal masking, representation by polar Fourier descriptors, and contractility assessment. The physiologic applications of the methodologies are evaluated by assessing the contractions in isolated adult and neonatal rat cardiocytes. Our results demonstrate the effectiveness of the proposed approaches in characterizing the contraction process of the cardiocytes. The proposed methods provide a more comprehensive assessment of the myocyte contraction processes. Furthermore, adult contractility assessment method is suitable for determining myocyte contraction in cells that usually bend or move during contraction. More importantly, the proposed methods can be utilized to evaluate changes in contractile behavior resulting from drug intervention, disease modeling, transgeneity, or other common applications to mammalian cardiocytes.
AbstrActs

Patricia Geist-Martin, Communication
Rebecca Mariotti, Communication (U)
Process: How People Cope With Romantic Break-Ups
Communication as a Tool For the Coping and Healing
Locaton: Presidential Suite
Friday, March 5, 2010, 1:00 pm
Session B-13

Peter Salamon, Mathematics
Sara Zarei, Computational Science (D)
The Physiological Model of Cystic Fibrosis
#226 2:15

Cystic fibrosis (CF) is the most common autosomal recessive disease in Caucasians with a reported incidence of 1 in 2500. It is caused by mutations in the Cystic Fibrosis Transmembrane Regulator (CFTR) ion channel gene. The defective gene causes the body to produce abnormally thick, sticky mucus that mainly affects the lungs, digestive system and even circulatory system of CF patients. CF patients face severe breathing problems, inadequate digestion and absorption of nutrients. They experience intermittent pulmonary exacerbations characterized by dyspnea, cough, sputum production and sinusitis, which result from a build-up of mucus plugs and biofilms. Over time this will cause airway scarring and lung infection and finally respiratory failure of a CF patient. The goal of this paper is to use a physiological model of CF to better understand and control the disease. This model links mucus plug/biofilm formation to lung physiology. In this research we are representing a spatially distributed physiological model that follows the rate of mucus buildup, scarring rate, and scarring threshold for irreversible restructuring. The model is based on the fractal structure of a lung and assumes that the rate of mucus accretion and scarring in an infected bronchiale are constants characteristic of the local microbial community. A preliminary version of this model is used to adjust these constants to mimic the CF patient registry’s FEV1 data. FEV1 is a spirometric test that measures the volume exhaled during the first second of a forced expiratory maneuver. We were able to match our predicted results to the observed data. By using this physiological model we will be able to run in silico tests of different treatment regimens (e.g., timing of antibiotic administration, types of antibiotics, steroids, etc.).

Session B-13
Oral Presentation: Communicative and Societal Issues
Friday, March 5, 2010, 1:00 pm
Location: Presidential Suite

#227 1:00

Communication as a Tool For the Coping and Healing Process: How People Cope With Romantic Break-Ups
Rebecca Mariotti, Communication (U)
Patricia Geist-Martin, Communication

Romantic relationships are so complex and intricate, that each one leaves a unique and lasting impression on our lives. The power of relationships is that people still enter them knowing the possibility that it could end in the future. Thus, a romantic break-up is an experience that almost anyone can relate to, whether they were never in a serious relationship but had strong feelings for someone and had to say good-bye, or if two people were dating for six years and chose to part ways. Regardless, a romantic break-up can be a traumatic life experience (Pistole, 1996). But what happens after a relationship is over? How do people cope with their emotions, feelings, and thoughts? Coping plays a paramount role in restoring one’s life, “Coping can be defined as a set of cognitive, affective, behavioral, and physiological processes that are consciously and/or unconsciously used to deal with stress” (Vashchenko, M., Lambidoni, E., & Brody, L., 2007).

I would like to look into how people cope through communication with their romantic break-ups. Because people cope in so many distinct ways, there are various factors and outcomes that can be produced after a break-up. As a result, there are positive and negative ways people can cope from break-ups such as; seeking support from family and friends or withdrawing from them, developing personal growth and changes or turning to self-denial and self-destruction, and moving on from a relationship or struggling to let go of those attachments. To present this topic I will first share my rationale in which I present my claims within the context of this piece. I will then move to the methodology section in which I will discuss the methods I used for gathering information and data for my topic and evidence I found to support my claims. After, how my collected data was analyzed and interpreted will be discussed. Within the results section, I will share three narratives regarding break-ups, two from my close friends and one from my own personal experience and discuss some insights found from these pieces of data. To conclude my piece, I will disclose further insights and findings from my research and describe my limitations encountered during this assignment. I will also conclude with directions and suggestions for further research in this area.

#228 1:15

A Survey of Intercultural Biases: Stereotypes, Prejudice, Discrimination, Ethnocentrism and Racism
Kaeli Namba, Communication (M)
Ron Lustig, Communication

This state-of-the-art literature review examines recent and seminal research on cultural biases, which includes stereotypes, prejudice, discrimination, ethnocentrism, and racism. Within each component section, emphasis is placed on the various definitions of these terms, strengths and weaknesses of the body of work, and suggestions for future research. This review also discusses the implications of cultural biases on intercultural communication. The findings demonstrate that although cultural biases have been widely researched, there are still areas and perspectives that need more attention, particularly in an increasingly globalized context. Finally, the paper concludes that more contemporary
and subtle forms of cultural biases need to be studied due to their pervasive and evolving nature.

**#229 1:30**

**Intercultural Friendship**

Erdan Li, Communication (M)
Kurt Lindemann, Communication

This research aims at exploring two crucial factors, namely culture and language, that exert a significant impact on the initiation of intercultural friendships between Chinese students and other students studying in the US. In so doing, it seeks to understand the function and role of these two factors in intercultural friendship initiation phase and uncover some practical strategies that Chinese students use in the course of intercultural friendship development. The findings suggest that a lack of competence in oral English is potentially creating barriers for Chinese students to make effective verbal communication with people, native English speakers in particular. Chinese students are found to be rather reticent due to their inability to make full sense of what other people are talking about in English. This passive communication mode is disadvantageous in terms of initiating friendships in that it not only prevents others from learning the person, but also makes people think that the person is complex or does not have his/her own ideas about whatever is being discussed. In addition, language is found to be producing misunderstanding between the dyad in a sense that it is inevitable for Chinese students to make language-related mistakes when they are speaking in a second language, thus, unintended messages or wrong information may be conveyed that probably distort the original meaning or intention of the senders. In consequence, the other side of the conversation is not likely to interpret the messages in a way that they are supposed to be understood. Misunderstanding is likely to reduce the dyad’s interests in future interaction that is necessary for the development of friendship. Finally, speaking a second language limits the Chinese students ability to show their humor, which is believed to promote the friendship development. In addition to language, culture is found to be both a positive factor that facilitates the acquaintances to friends process and a negative one that slows down the development. On the one hand, the dyad’s talking about cultural differences, which they believe is fun and interesting provides them with the opportunity to better understand each other, helping eliminate cultural stereotypes and create new perspectives based on which the friendship may be furthered. On the other, culturally different behaviors can be a stumbling block for the friendship initiation because different cultural norms can produce conflicts that prevent the relationship from going further.

**#230 1:45**

**“But That’s Not the Reality of Life Here”: A Proposal for an Ethnographic Study of Expatriate Humanitarian Aid Volunteers**

Sarah Shoemaker, Communication (M)
Patricia Geist-Martín, Communication

Medical professionals, i.e. doctors and nurses, and everyday civilians eagerly volunteer to donate their time in order to help those in dire need. Limited resources of humanitarian aid and non-governmental organizations (NGOs) often fail to provide sufficient training for volunteers. Communication between volunteers and those receiving aid is complicated by attitudes regarding healthcare, cultural differences, and crises. This study will examine the experiences of expatriate humanitarian aid volunteers through the collection of narratives in hopes of improving pre-departure training methods for these volunteers.

**#231 2:00**

**Milk Does a Body Good? A Rhetorical Analysis of Selected Got Milk Advertisements**

Amanda Mizell, Communication (M)

This paper specifically looks at a collection of nine “Got Milk” print advertisements. This study rhetorically analyzes these advertisements as form of edutainment in an effort to understand how nutritional information like “Milk does a body good” are being communicated. Due to the cultural acceptance that milk has already established, as well as this “Got Milk” campaign started in 1993 by the Executive Director of the California Processing Board, many have never questioned whether or not milk should be a part of their diet. This study explains how these ads are persuasively selling an education and nutritional information and lastly, will explain that through this edutainment, these ads are communicatively selling an identity.

**#445 2:15**

**Revolutionary Suicide: A Rhetorical Examination of Jim Jones’ Death Tape**

Margaret Pehanick, Communications (U)
Chuck Goehring, Communications

In 1978, Peoples Temple leader Jim Jones delivered a speech so powerful to his followers that by its end over 900 men, women, and children were left dead at their own hands. How could one man have orchestrated such a tragedy? To be sure, Jones’ ability to enact mass suicide relied on the ability to form what Kenneth Burke would call the proper attitude in his followers. While many
The Suffering of Modern War in the Works of Otto Dix

Joseph Hammett, German (U)
Kristin Rebien, European Studies

In the years following the horrors of World War I, the first machine driven war with the capacity to annihilate masses efficiently and anonymously, a new sense of disillusionment towards war came to the forefront of art. In this presentation, I argue that Otto Dix, with the paintings from his cycles Der Krieg and Hurenbilder, represents this new animosity towards war found among many artists and intellectuals in the Weimar Republic. Having been a supporter and soldier during World War I, Otto Dix lived the horrors of modern war. This experience had a major impact on his works following the war, which portrayed the non-heroic and disturbing side of war. Along with other painters, writers and musicians of his generation, Otto Dix portrayed a side of war, which had not been seen during the German Empire before World War I nor in the times of the Third Reich, which once again glorified war and romanticized the soldier. This presentation analyzes one painting from Dix’s cycle Der Krieg, The Trench, and one painting from Dix’s cycle Hurenbilder, Whore with War Cripple, where the German soldier is not depicted from a proud and romantic point of view, but rather as a poor and destroyed individual, who had suffered immensely during and after the war. I argue that these images gave a voice to those who had experienced the war as soldiers and witnessed firsthand the destruction caused by industrialized war. In my reading of the images, it is evident how such a war tore away the humanity from the participants, changing them from lively young men into weak and ugly figures scarcely resembling that which they once were. However, as the Weimar Republic came to an end and militarism and conservatism once again grasped power in Germany, artists and intellectuals such as Otto Dix were forced to stop producing art and their art was banned only because they interfered with the political ideology of the Third Reich.
and 1960s by analyzing native nationalism as the driving force behind the coalition that toppled Batista and brought Fidel Castro to power. Within the context of nationalism, violence became an ethos of both personal and national liberation in Cuba, just as it did in much of the rest of the decolonizing world. Fanon most eloquently expressed this ethos in The Wretched of the Earth, but it is equally evident in the language and actions of the Cuban revolutionaries. The selected application of violence as a state building tool can be seen in the conduct of the armed struggle against Batista, the tribunals held after January 1959, and in the various ways in which the Castro regime coped with foreign policy challenges and internal dissent throughout the Cold War. Closely tied to these concepts of nationalism and violence are gender constructs and identification. Gendered language is pervasive throughout the revolutionaries’ expressed perceptions of themselves, their allies, their enemies, and their place in history. It is a vital part of understanding the nationalistic ideology of not only the Cuban revolution but also of the decolonizing world as a whole. By uniting the themes of nationalism, violence and gender, this thesis seeks to build upon the work of period intellectuals such as Fanon, and Sartre as well as contemporary scholars such as Karen Kampwirth and Dayan Jayatilleka. In so doing, it hopes to encourage scholars to rethink traditional perceptions of post World War II liberation struggles as merely proxy conflicts in the larger Cold War, and begin to contextualize them as unique events that helped shape the ideology and foreign policy direction of the Cold War superpowers.

#240 1:45

**Eumachia of Pompeii: Munificence and the Subversion of Female Gender Roles in the Roman Empire**

Michelle Peralta, History (M)
Elizabeth Pollard, History

This paper explores the relationship between women, their religious roles, and their civic munificence in order to determine how women used their public positions to undermine their traditional gender roles. As mothers, wives, and daughters, women’s sphere of influence was largely limited to the private affairs of the home. This traditionally domestic concept of female roles, however, appears contradictory to epigraphic and monumental evidence from the Roman world that clearly demonstrates that women were involved in the public sphere as priestesses and civic benefactresses. While scholars such as R. van Breman, M. Boatwright, and M. Woodhull have studied Roman women and euergetism previously, they explained female involvement in the public eye as an extension of women’s domestic and familial roles. Although J.F. Donahue examined the important role Roman women played in the urbanization and Romanization of the West, women’s access to munificence as a means of subversion remained overlooked. This paper argues that the pubic munificence of women was a means whereby they could subvert their traditional, domestic gender roles, and operate in the public, masculine, sphere of society. Eumachia of Pompeii’s acts of munificence are examined, as a case study, to see how women engaged in the public sphere, and to what extent they were successful. Inscriptions and monuments illustrate what women’s munificence looked like, how women influential were in their cities, how they were accepted as capable public figures, and ultimately, how these patroness-priestesses made a successful transition from the private world to the public one. As a consequence of women actively participating in such a public manner as munificence, and holding official public positions as priestess, women like Eumachia were over-turning what was hitherto thought to be acceptable for Roman women. Whereas women were previously thought to be domestic figures, they were now venturing into the public sphere, and were successful in that sphere. Women were major civic donors, fulfilled their public functions as priestesses, and were commemorated and accepted as such by their communities. These priestess-patronesses demonstrate how Roman women could, and did, undermine their traditional gender roles.

#241 2:00

**Who is Better at Enduring Toil?: Constructing Roman Memory of the Hannibalic Invasion in the First Century CE**

Keenan Baca-Winters, History (M)
Elizabeth Pollard, History

The Second Punic War left an indelible memory imprinted upon the minds of the Roman people centuries after the war ended in 201 BCE. To Romans living in the first century CE, the memory of the defeats that Hannibal inflicted upon the Romans served as a signifier of Roman identity: those who had a connection to these defeats could consider themselves as Roman. Moreover, the memory of the Romans overcoming these defeats and their victory over Hannibal served a way for Romans to think of themselves as worthy and deserving to rule over other nations. This presentation uses narrative theorist Paul Ricoeur and the anthropologist Fredrik Barth to investigate how Livy and other author’s narrative of the of the Second Punic War reflected overall Roman cultural memory of the event, and how Romans in the first century CE constructed an ethnic boundary around themselves to foster Roman identity. Indeed, the memory of the trauma and triumph of the Second Punic War allowed the Roman people of the first century CE to justify their expansion over other peoples because of the fact that the Romans were able to overcome the initial setbacks of the Second Punic War and defeat Hannibal at the battle of Zama in 202 BCE.
#242  2:15

**The Empire’s Muse: Roman Interpretations of the Amazon in Virgil’s Aeneid**

Erin Leal, History (M)
Elizabeth Pollard, History

Modern historians and classicists have studied the ancient Greeks’ use of Amazon mythology extensively and exhaustively. Their analysis of the Amazon in literature has contributed to better understanding of Greek society, culture, and the mindset of those ancient people. Next to nothing, however, has been written about the ancient Romans’ use of the legends of the Amazons and what conclusions, if any, can be drawn about why Amazons appear as they do in the literature of Imperial Rome. This study draws primarily on my analysis of Virgil’s Aeneid written during the reign of Augustus from 29 to 19 BCE. Following the chaos and disharmony of the Roman Republic’s Civil Wars, the Amazon was an archetype used in the literature of Virgil to promote the unity of the state under Augustus. This paper attempts to analyze Virgil’s Amazon, Camilla, to discern why the Amazon imagery was used instead of another mythic figure and what possible end result the author might be trying to generate. A close examination of the primary sources, thematic repetitions and devices, homages to more ancient sources, contemporary events, and the style of the Amazon representations suggest that there are trends in the use of the Amazon mythology that reflect the broader interests and contemporary problems of the Roman Empire.

Session B-16
Oral Presentation:
Trauma and Aggression in Adolescence
Friday, March 5, 2010, 3:00 pm
Location: Backdoor

#244  3:15

**Description of a Research-based Prevention Program for Teen Dating Violence**

Laura Ruzzano, Psychology (U)
Audrey Hokoda, Child and Family Development

Dating violence is the physical, psychological or sexual control or dominance over another person in a dating relationship (Wekerle & Wolfe, 1999). One in five adolescent females has been physically or sexually abused within a dating relationship (Silverman, Raj, Mucci, & Hathaway, 2001). Dating violence has been linked to depression, suicidal attempts, drug/alcohol abuse, and criminal activity (National Center for Injury Prevention and Control, 2001). Furthermore, dating violence in adolescence is a predictor for subsequent relationship violence in adulthood (Betz, 2007). The high prevalence and the serious effects associated with teen dating violence demonstrate the need for programs, such as the Healthy Dating Program run in high schools in San Diego County. The eight week program developed by Health and Human Services Agency, Office of Violence Prevention and San Diego State University is guided by social cognitive and socio-ecological theories (e.g., Glanz, Rimer & Lewis, 2002; Selmi, Klein, & Griest, 1982). The curriculum focuses on increasing knowledge about dating violence, challenging beliefs that tolerate dating violence, and skill building that address anger control strategies and social problem-solving. Sample curriculum will be available, and interactive activities will be led during the presentation. We will also describe ongoing research evaluating the effectiveness of the program in decreasing students’ self report of perpetration and victimization of dating violence, challenging attitudes that tolerate dating violence, and increasing self-efficacy for anger control.

Peer Abuse Prevention Program (PAPP): Program Evaluation 2008-2009

Julia Roncoroni, Psychology (U)
Audrey Hokoda, Child and Family Development

Students in American schools are exposed to an extraordinary amount of aggression and victimization. The vast majority of research conducted on bullying has demonstrated that both bullies and victims are at great risk for developing behavioral, emotional, and academic difficulties. The present study is an evaluation of the implementation of the Peer Abuse Prevention Program (PAPP), a research-based, school-wide anti-bullying project, during the 2008-2009 academic year. PAPP was modeled after Dan Olweus' best practice bullying program and is currently being implemented at the Sweetwater Union High School District (SUHSD), in southern California. This study uses a 2 (intervention, control group) x 2 (pre-test, post-test) mixed factorial design, with group as a between-subjects variable and testing session (pre-, post-) as a within subjects variable, to evaluate whether the program is effective in decreasing self-report of victimization and in changing attitudes that legitimize bullying. Students in grades 7-8 (n = 770) were surveyed twice, at the beginning of the Fall 2008 and at the end of the Spring 2009. The hypothesis is that, by the end of Spring 2009, students in the experimental group would have less tolerance for bullying than students in the control school and that rates of both direct and indirect victimization will decrease. Although initial analyses yielded no significant results, further analyses examining individual schools and individual item responses will be run to further examine the effects of the program. Implications for improving curriculum development and implementation procedures will be discussed.
**Abstr Acts**

**STUDENT RESEARCH SYMPOSIUM 2010**

**#245 3:30**

*Depression Mediating Anxious Attachment and Teen Relationship Violence Perpetration among Latinos.*

Neri Martinea, Psychology (U)
Emilio Ulloa, Department of Psychology

Teen Relationship Violence (TRV) is normally referred by researchers as the physical, sexual, and psychological abuse of another individual in a relationship that elicits harm (Wekerle & Wolfe, 1999). According to the 2007 Youth Risk Behavior Survey, 10 percent of adolescents nationwide reported being the victim of physical relationship violence during the previous year. Some of the harmful effects associated with TRV include: post-traumatic stress disorder, physical injury, depression, and low self-esteem (O’Keeffe, Brockopp, & Chew, 1986). One of the antecedents related to TRV that has received some attention in the literature is the construct of attachment styles in attachment theory (Bowlby 1969/Ainsworth, 1970). Anxious attachment has been identified as a predictor for TRV perpetration (Dutton, 2007); however, an explanation for such relationship remains unexplored. Another antecedent that has been constantly associated with both anxious attachment and TRV is depression. Mikulincer and Shaver (2007) provided a summary of more than 100 studies that showed the positive association between anxious attachment and depression. 137 middle school and high school Latino students (77 females, 60 males) with at least one dating experience over the past year completed self-report measures of anxious attachment, depression, and victimization of TRV. A mediational model was tested and the following was determined: higher scores in anxious attachment were positively associated with higher scores in depression (β = .393, p < .001) and higher scores in TRV perpetration (β = .247, p < .001); high scores in depression were associated with high scores in TRV perpetration (β = .360, p < .001); the impact of anxious attachment on TRV perpetration was attenuated after controlling for depression. Sobel’s test of the indirect effect showed depression partially mediated the relationship between anxious attachment and TRV perpetration (z = 2.681, p < .01). The hypothesis that depression may help explain the relationship between anxious attachment and TRV perpetration was supported. These findings suggest that adolescents who are anxiously attached may develop depression which may result into subsequent relationship violence perpetration. These findings are consistent with previous studies suggesting the existence of various types of perpetrators influenced by attachment styles (Dutton, 2007). Funded by the SDSU MBRS/IMSD Program 2R25GM058906-09A1 Funded by the U.S. Department of Education TRIO Programs, Grant P217A070202

**#246 3:45**

*Early Life Predictors of Externalizing Behavior Problems in Childhood*

Nancy Calderon, Psychology & Spanish (U)
Joseph M. Price, PhD, Psychology

Previous research shows that early maladaptive environments are linked to negative behavioral outcomes in children. In this study, we examined maltreatment, gender, and early maternal and child health as predictors of externalizing behavior problems in children entering elementary school. It was hypothesized that maltreatment, gender, early child health, and maternal health would predict externalizing behavior problems. This sample (n=178) consisted of 51.4% boys, and 54.6% maltreated children. Parent participants completed a health questionnaire that assessed retrospective recollection of maternal health at the time of pregnancy and the child’s early health. Parents were asked to report on their child’s current behavior problems using externalizing behavior subscales of the Child Behavior Checklist (CBCL). Correlation analyses yielded a significant relation between gender (r = -.264, p < .001; males higher), maltreatment (r = .385, p < .001), early child health (r = -.322, p < .001), and maternal health (r = -.178, p < .05) to externalizing behavior. An analysis of covariance was conducted to determine the effects of each predictor on externalizing behavior problems while controlling for the rest. Results yielded a significant effect of gender (F = 6.05, p < .05), early child health (F = 9.21, p < .01), and maltreatment (F = 22.33, p < .001) on externalizing behavior problems. Despite 1) the significant correlation between maternal health and early childhood health (r = .36, p < .001), and 2) the significant independent effect of maternal health (F = 6.16, p < .05) and early childhood health (F = 21.65, p < .001) on externalizing behavior problems, maternal health was not a significant predictor of externalizing behavior problems when controlling for the other predictors. Additionally, a hierarchical regression analysis was conducted and yielded a significant individual and additive effect of gender (β = -3.56, p < .05) accounting for 6% of the variance, early childhood (β = -1.47, p < .001) accounting for an additional 9% of the variance, and maltreatment (β = 3.38, p < .001) accounting for another 13% of the variance. These findings support our hypotheses and provide details of how the predictors are associated to child externalizing behavior problems. The present study highlights the importance of early childhood environment in predicting early behavior problems in children. If these children are identified early in school, there might be a better opportunity for early intervention that may in turn improve their trajectory into adolescence and adulthood.
**ABSTRACTS**

#247 4:00

*Longitudinal Impact of Maltreatment Recurrence on Adolescent Conduct Problems: Does Type of Maltreatment Matter?*

Danita Wynes, Psychology (U)
Laura Proctor, Psychology

Youth who have experienced maltreatment are at heightened risk of developing externalizing behaviors such as rule breaking and aggression (Deater-Deckard & Dodge, 1997), including the symptoms and diagnosis of conduct disorder (Kaplan et al., 1998). However, little is known regarding the influence of specific characteristics or patterns of maltreatment on the development of conduct problems. The present study examined whether recurrence of maltreatment predicted adolescent conduct disorder symptoms among a sample of youth who experienced early maltreatment. We aimed to answer two questions: (1) Are youth who experience the recurrence of maltreatment more likely to evidence conduct disorder symptoms at age 14 than youth who do not experience recurrence? (2) Do relations between conduct disorder symptoms and maltreatment recurrence vary by type of maltreatment (i.e., neglect, physical abuse)? Participants (n = 169; 48% male) came from the Southwestern site of the Consortium of Longitudinal Studies of Child Abuse and Neglect (LONGSCAN), an ethnically diverse sample of youth removed from their home before age 4 due to a substantiated Child Protective Services maltreatment report. CPS record reviews were coded at least every two years for maltreatment recurrence and type. Conduct problems at age 14 were assessed with symptom counts from the combined caregiver and youth reports on the Diagnostic Interview Schedule for Children (DISC) conduct disorder module. All site participants with completed data on the outcome variable were included in the present study. A one-way ANOVA was conducted to test for group differences among youth who experienced maltreatment recurrence between the age of 4 and 14 (defined as physical abuse, neglect, or both) and those who did not. Conduct problems were higher for youth who experienced recurrence of maltreatment, F (1, 155) = 21.951, p < .001. A 2x2 ANOVA was used to examine the impact of the type of maltreatment recurrence (physical abuse and neglect). Recurrence of physical abuse, but not neglect, predicted more conduct problems, F (1, 153) = 17.193, p < .001. The results of this research contribute to a better understanding of the dimensions of maltreatment and their relations with conduct problems in adolescence.

**Session B-17**

**Oral Presentation: Biology and Ecology**

Friday, March 5, 2010, 3:00 pm
Location: Calmecac

#248 3:00

*Assessing the Function of California Ground Squirrel Displays toward Northern Pacific Rattlesnakes*

Matthew Barbour, Ecology (M)
Rulon Clark, Biology/Ecology

In the presence of predators, prey should make decisions to minimize their risk of predation. However, many prey species actually approach and exhibit conspicuous vocalizations or repeated movements toward predators, rather than fleeing from them. These displays are thought to communicate to predators the prey’s vigilance and/or ability to escape. Predators should alter their hunting behavior in response to these displays by seeking prey they are more likely to capture. However, there is little empirical evidence that explicitly supports or refutes this prediction, so the function of these displays toward predators remains unclear. Here, I assessed the function of California ground squirrel displays toward Northern Pacific rattlesnakes. When confronting rattlesnakes, ground squirrels wave their tail (tail-flagging), throw dirt, emit alarm calls, and on rare occasions even bite rattlesnakes. I hypothesized that squirrel displays function to notify rattlesnakes that they have been detected. Rattlesnakes are ambush predators that rely upon capturing uninformed prey. Therefore, I predict that rattlesnakes will leave ambush sites soon after receiving displays and move further distances compared to rattlesnakes that do not encounter squirrels. Using a combination of radio telemetry and video observation, I documented rattlesnake-squirrel interactions under natural conditions. Results from these natural interactions reveal that rattlesnakes do not typically exhibit overt responses during squirrel displays. However, rattlesnakes receiving a large number of tail-flagging displays (≥ 145 tail-flag bouts) were more likely to leave ambush sites within 30 minutes compared to those receiving fewer tail-flag bouts. Contrary to my prediction, rattlesnakes did not move further distances from their ambush sites after receiving displays, but continued to hunt nearby. These results suggest that squirrel displays function primarily to notify rattlesnakes of the squirrel’s relative vigilance or concern, since rattlesnakes only respond to sustained tail-flagging displays. These field observations provide one of the most extensive assessments of the function of these conspicuous displays in any predator-prey system, thereby contributing much needed empirical insight to predator-prey communication theory.
#249 3:15

**Shape Analysis of the Mandibles of Odontocetes (Toothed Whales)**

Celia Barroso, Biology (M)  
Annalisa Berta, Biology

Odontocete mandibles serve multiple functions, including feeding and hearing. Sound is thought to enter the hearing apparatus through the pan bone of the posterior mandibles (Norris, 1968). Recently, computer models suggest that sound also follows a “gular” pathway below the mandibles (Cranford et al. 2008). The unambiguous link between form and function has catalyzed our study of mandibular shape. Previous studies have described odontocete mandibles using linear morphometrics and focused on multiple populations within a single genus (Westgate, 2007). We use Geometric Morphometrics (GM) to avoid some limitations of linear morphometric studies, using relative 3-D landmark positions instead of lengths. The objective of this study is to use GM to quantify mandibular shape variation across all major lineages of odontocetes (36 specimens, 22 species). This superimposition technique measures shape only, excluding any scaling, rotational, and positional effects. Preliminary results indicate that the majority of shape variation occurs within portions of the mandible that are associated with feeding – the length of the symphysis (43%), the connection between left and right mandibles, and splay, or width, of the mandiblar condyles (35%). Portions of the mandibles associated with sound reception exhibit the next largest amount of shape variation (7%). Furthermore, comparative phylogenetic analyses suggest that ecological factors, such as feeding behavior, may play a role in shaping jaws, in addition to phylogenetic relationships.

#250 3:30

**The Comparative Anatomy of Baleen and its Role in Mysticete Feeding Ecology**

Samantha Young, Evolutionary Biology (M)  
Annalisa Berta, Biology

The four extant families of mysticete (baleen) whales employ a variety of filter-feeding methods: continuous ram feeding, or skimming (Balaenidae, right whales, and Neobalaenidae, pygmy right whale), intermittent suction feeding (Eschrichtiiidae, gray whale), and intermittent ram feeding, or engulfment/lunge feeding (Balaenopteridae, rorquals). Mysticetes are specialized in their strategies of filtering prey and exhibit unique morphological features, which contribute to effective consumption of large quantities of invertebrates and small fish. They utilize a novel filter feeding apparatus known as baleen, an epidermal tissue composed of keratin which occupies the place of teeth in the mysticete jaw. The primary objective of this study is to describe the anatomy of baleen, focusing on the morphological and structural variation between and within mysticete families. Furthermore, selective pressures (e.g. phylogenetic relationships/inertia, feeding ecology, inherent property of baleen morphology) that may be acting upon and driving this variation will be investigated. Finally, the evolution of baleen and filter feeding in mysticetes will be examined. Previous work has provided ecologically significant broad scale measurements of baleen, including four variables highlighted in this study: baleen plate length and width, bristle density and bristle diameter. Data collected from 23 balaenopterids, eight balaenids and three eschrichtiids were employed in statistical analyses and ancestral character state reconstructions. The preliminary results indicate differences in baleen plate length and width between balaenids and balaenopteroids (balaenopterids + eschrichtiids) and quantify the coarse bristles found in eschrichtiids. Bristle density shows no familial groupings and is likely correlated with feeding ecology. Balaenids and eschrichtiids are significantly different for all three variables analyzed. Ancestral character state reconstructions show consistency in phylogenetic relationships for plate length and width; however, feeding strategies/diets show phylogenetic convergence between eschrichtiids and balaenids, and Megaptera novaeangliae (humpback) and Balaenoptera acutorostrata (minke).

#251 3:45

**Testing Phylogenetic and Phylogeographic Hypotheses in Acuclavella (Opiliones, Ischyropsalidoidea) from the Western Hemlock Zone of the Pacific Northwest**

Casey Richart, Evolutionary Biology (M)  
Marshal Hedin, Biology

Phylogenetics and phylogeography have played a pivotal role in the study of evolutionary processes, such as population divergence and speciation. The role of geographic barriers or climatic fluctuations in evolutionary diversification can now be explored via testable hypotheses. Since the study of vicariance of disparate populations or speciation via allopatry could potentially be explored at the intraspecific or interspecific (often sister) levels, methodological tools ranging the phylogeographic-to-phylogenetic spectrum must be employed (Carstens et al. 2004). These tools are employed in the context of thorough geographic sampling, morphometrics, and multiple loci. Here, the non-vagile opilionid genus Acuclavella is explored using an integrated approach to test species limits in the genus, and to test regional hypotheses pertaining to Pleistocene refugia, riverine barriers, and ancient vicariance.
AbstrActs

#252 4:00

Aliatypus thompsoni (Araneae, Antrodiaetidae) in the Transverse Ranges of Southern California: Comparative Phylogeography and Delimitation of Cryptic Species
Jordan Satler, Evolutionary Biology (M)
Marshall Hedin, Biology

With roughly 1.25 million animal species already described, many people believe that scientists have a full understanding of the planet’s biodiversity. In reality, a majority of the species on Earth are undescribed and unknown. California is one of 25 global biodiversity hotspots, reflecting a high concentration of endemic species. Many factors lead to this species richness and endemicity, including a complex geologic history, extreme topography, and strong climatic gradients. California is also home to the greatest diversity of mygalomorph spiders in North America. Mygalomorphs are bulky, long-lived spiders, which include tarantulas, trapdoor spiders, and their kin. Most mygalomorphs are ground dwelling with limited dispersal abilities, leading to aggregations of spatially-isolated colonies found in suitable microhabitats. Mygalomorphs also tend to be morphologically conserved at shallow phylogenetic levels. As such, species delimitation (i.e., understanding species limits) in mygalomorph spiders is a very challenging problem. The genus Aliatypus (Araneae, Antrodiaetidae) includes eleven described species of trapdoor spiders distributed in California and parts of Arizona. Prior studies on the genus include phylogenetic analyses, studies of morphological species limits, species distributions, and natural history. Aliatypus thompsoni occurs from the Los Angeles basin (southern extent in the northwestern San Bernardino Mountains) north through other LA basin ranges, including two distributional “arms” extending northwest past Santa Barbara, and northeast to Kern County. To date, there have been no studies of intraspecific phylogenetic divergence (phylogeography), and morphological species limits have not been assessed using other classes of data (e.g., molecules, digital imaging, etc). In this study, I first collected a large sample of A. thompsoni specimens from sites spanning the species distribution. From these samples, I collected DNA sequence data from one mitochondrial and three nuclear genes, with varying evolutionary rates. Phylogenetic analyses of the genetic data reveal four distinct groupings, each found in a unique, non-overlapping geographic region. Overall, my study indicates that there are four divergent genetic groups within A. thompsoni, and that these are divergent enough to be considered distinct species. The discovery of these new species not only offers greater insight into regional biogeography, but may also have conservation and land management implications.

#253 4:15

Phylogenetic Relationships among the Alligator Lizards (Gerrhonotinae): A Multilocus Approach
Angela Marion, Evolutionary Biology (M)
Tod Reeder, Biology

The use of multilocus nuclear data and coalescent-based approaches in the inference of species trees has revolutionized the field of phylogenetics. Traditional model-based approaches to gene tree inference may fail to capture the true underlying species tree, particularly when sequence data from only a single gene are analyzed. With nuclear sequence data becoming increasingly available (through cheaper and simpler lab techniques), investigators can collect sequences from multiple, unlinked genes and analyze them in a coalescent context that accounts for discordance among gene histories. That is, species-tree inference is now much more attainable. In this study, we infer the phylogenetic relationships among thirty species of the anguid subfamily Gerrhonotinae, the Alligator Lizards. These lizards occur across western North America, from British Columbia through Mexico and onto the Panamanian Isthmus. Previous morphological and mitochondrial DNA analyses have suggested that two of the six genera (sister taxa Abronia and Mesaspis) may in fact not be monophyletic with respect to each other. Lizards of the genus Abronia are distinctively arboreal and occur in highland cloud forests of southern Mexico and Guatemala, as do species of Mesaspis. Coloptychon is a monotypic genus known from only three specimens, never before included in published molecular analyses. The local representative, Elgaria, comprises at least seven species whose interrelationships are not yet well-established. Barisia and Gerrhonotus are likely sister genera and occur across Mexico and into southwestern Texas. We are collecting DNA sequence data from five unlinked nuclear genes (as well as one mtDNA gene) and inferring both gene trees (using traditional model-based Bayesian and Maximum Likelihood analyses) and species trees (using the Bayesian coalescent method BEST and the Minimizing Deep Coalescences criterion in Mesquite). With a robust species tree in hand, we plan to make comparisons between model-based approaches and coalescent-based approaches, as well as address the evolution of arboreality. Further, we will estimate divergence dates using BEAST so that we can evaluate hypotheses of biogeographic lineage diversification in Central America.
Caroline Macera, Public Health
Chun Nok Lam, Public Health (M)
in San Francisco
Use of Traditional Chinese Medicine by Chinese Americans

Although plants in the high salt marsh transition zone of southern California salt marshes are subject to the abiotic stress of low soil moisture and high soil salinity throughout much of the year, many annual invasive species reproduce during the brief period of reduced salinity and increased moisture during winter rainfall. I investigated the stress tolerance of four common invasive species in a growth chamber experiment by germinating seeds in varying moisture and salinity levels. Next I conducted a field experiment located in the upland-high marsh ecotone with varying timing, quantity, and frequency of salt addition treatments. The growth chamber experiment showed strong differences in salinity tolerance between species, however all species showed highest germination at the lowest salinity level, and diminished as salinity increased and soil moisture decreased. In the field experiment, monthly application of the lowest level of salt at the beginning of the growing season was most effective at inhibiting growth of annual invasive species. Additional work is needed to refine the timing and quantity of salt required and to establish the long term effects of salt addition. This work supports the idea that strategically timed salt application can effectively reduce the presence of many invasive species.

#256 3:15
Relationship Between Household Food Rules and Children's Eating Behaviors
Christina Eisenberg, Public Health/Health Promotion (M)
John Elder, Graduate School of Public Health

Childhood obesity has doubled in the past 20 years and is a major public health challenge. Parents can influence their children’s diets through modeling, preferences and attitudes towards food, feeding practices, and household food rules. Limited research has examined household food rules in relation to children’s eating behaviors. The present study investigated the relationship between parent household food rules and the eating behaviors of children between the ages of five and eight years old living in San Diego County. This study used baseline questionnaire data from the MOVE/me Muevo project. Food rules included Limited portion sizes at meals, No meals while watching TV/DVDs, No fried snacks (such as potato chips) at home, Must eat dinner with

29-item self-administered questionnaire was conducted with 244 Chinese Americans living in San Francisco. It focused on socio-demographic, TCM utilization, resources and accessibility factors, and was offered to subjects in both English and Chinese translations upon voluntary participation. The study used convenience sampling at 11 local service agencies over a nine-week period in 2009. Multivariate analyses for integration factors, including years of residency in the US, were performed by logistic regression. Results: Eighty-percent of the participants used TCM for treating illnesses during the previous two years. Among them, nearly 90% indicated a combined usage with conventional treatments. Taking herbs prescribed by TCM practitioners was the most frequent modality (42%). It was followed by over-the-counter (OTC) herbal pills (35%) for self-medication. In multivariate analyses, factors predicting TCM use were years of residency in the US (p < 0.01), country of origin (p = 0.017), and English oral ability (p < 0.01). In contrast to other study results, income and insurance coverage had no relationship with the use of TCM therapies in this sample. Conclusion: TCM utilization is common among the Chinese migrants in San Francisco. Results suggest that visiting TCM herbalists is the most popular treatment, and the majority of these TCM users also seek conventional health care services. Factors determining their medical behaviors are associated with their integration experience, in which the use of TCM declines over-time living in the US. Physicians should better recognize and understand these predictors to the therapeutic preferences among the Chinese population in offering a proper guidance to their health care practices.
family, Limited fast food, No sugary beverages, and Must finish all food on plate. Dietary outcomes included: (1) meeting daily fruit and vegetable consumption guidelines, (2) sugary beverage consumption, and (3) fried food consumption. This study also examined whether the aforementioned relationships differed by child’s ethnicity. Bivariate analyses examined the relationship between each dietary outcome and each household food rule. Household food rules that were statistically associated with dietary outcomes in the bivariate analyses (p = .05) were included in a regression analysis to determine their relative contribution controlling for other rules. Children whose parents had the Limited fast food rule versus those who did not had twice the odds of meeting the dietary guidelines for fruit and vegetable consumption (p = 0.05). Children whose parents had the No sugary beverages rule versus those who did not had lower mean sugary beverage intakes (p = 0.05). Children whose parents had the No fried snacks (such as potato chips) at home rule versus those who did not had a lower fried food consumption score (p = 0.05). No interaction effects were shown for ethnicity.

#257 3:30

*Evaluation of the TODAY Project (Transforming Obesity and Diabetes Awareness in Youth): the Impact of a School-based Prevention Program on the Behavior and Knowledge of 5th Grade Students*

Felice Chavez, Public Health (M)
Hala Madanat, Public Health

It is estimated that 17% of children ages 6 to 11 and 17.6% of children ages 12 to 19 in the US are overweight. Although overweight and obesity rates are high among the general population; rates are even higher among minority and low-income populations. Schools have been a setting in which effectiveness of interventions have been evaluated for their potential in reducing overweight and obesity prevalence; as well as, improving nutrition and increasing physical activity and knowledge associated with both behaviors. However, few studies exist that examine the impact of school-based interventions on low-income, minority populations. The purpose of this study was to evaluate the impact of TODAY, a school-based intervention that had the goal of preventing obesity and diabetes in the fifth grade population at two low-income, primarily Hispanic/Latino elementary schools in Escondido, California. The study examined nutrition, physical activity and health knowledge variables. A sample of 123 children, all 5th grade students who attended either Felicita or Lincoln elementary schools were recruited to participate in the project. The changes in nutrition and physical activity variables were measured by questions adapted from the School Physical Activity and Nutrition Questionnaire (SPAN) created by Coordinated Approach to Child Health (CATCH). The knowledge variable was measured by questions based on the health curriculum that pertained to nutrition and physical activity. It was hypothesized that children who participated in the project would demonstrate increases in healthy nutrition behavior such as fruit and vegetable consumption and decrease soft-drink consumption; increases in physical activity behavior and decrease sedentary behavior of screen time; lastly the students would demonstrate increased knowledge of nutrition and physical activity concepts. Statistical analysis included Wilcoxon rank-sum test and Wilcoxon signed-rank test. Results from the pre/post test indicated that the children who participated in the TODAY Project, increased healthy nutrition behavior, physical activity and health knowledge. Findings of this research are consistent with published literature on school-based interventions. Understanding the impact of the school on the health of its students will allow for cost-effective and successful school-based interventions that are capable of curving the overweight and obesity epidemic, especially among at-risk populations.

#258 3:45

*Factors Associated with Staphylococcus aureus Colonization among HIV-infected Persons*

Aladdin Shadyab, Public Health Epidemiology (M)
Nancy Crum-Cianflone, MD, MPH, Graduate School of Public Health

Background: Increasing rates of *Staphylococcus aureus* skin and soft-tissue infections are being reported among HIV-infected persons, which represent a significant public health threat. Since colonization with *S. aureus* predisposes infection, understanding factors associated with colonization is important. Sexual behaviors have been largely unstudied as potential risk factors for *S. aureus* colonization. In addition, the importance of colonization at other sites besides the nares requires further study. Purpose: We performed a cross-sectional study to determine the prevalence of *S. aureus* in five different areas and factors associated with colonization among HIV-infected persons. We hypothesized that high sexual risk behaviors, as represented by a history of sexually transmitted infections (STI), would be associated with *S.
aureus colonization. Methods: We evaluated baseline data from a prospective study of HIV-infected military beneficiaries from four HIV clinics. Swabs were collected from the nares, throat, axillae, perirectal, and groin areas for S. aureus colonization. Demographic and clinical data were obtained using a questionnaire and medical record review. A multivariate logistic regression model using a stepwise backward elimination approach was performed to evaluate factors associated with S. aureus carriage. Results: Of 496 participants, 94% were male; median age was 42 years (range 18-75); 46% were white/non-Hispanic, 34% African-American, 18% other, and 2% missing. The median CD4 count was 524 cells/mm3 (range 4-1752). 161 (32%) were colonized with S. aureus in >1 body site—the nares in 131 (26%), throat in 24 (5%), perirectal in 24 (5%), groin in 21 (4%), and axillae in 11 (2%); 34 (7%) of participants had colonization at multiple sites. Factors associated with colonization in multivariate analysis included a history of STI (OR 1.63; p-value 0.02). African-American race (OR 0.60; p-value 0.03) was negatively associated with colonization. Tobacco use (OR 0.65; p-value 0.07) and prior beta-lactam use (OR 0.67; p-value 0.11) approached significance. Conclusions: One third of HIV-infected persons were colonized with S. aureus. Staphylococcus carriage occurs in multiple body sites, which has important public health implications. A history of sexually transmitted infections was associated with colonization, suggesting that high-risk sexual activity may be a route of S. aureus transmission; further studies are needed.

#259 4:00

A Pilot Study on Determinants for Knowledge about the Transmission of Rickettsial Disease and Factors Associated with Tick Sightings in the Colonia Lomas de San Ramon in San Quintin, Baja California: VIIDAI 23, Fall 2009

Saranette Sotomayor, Epidemiology (M)
Stephanie Brodine, Graduate School of Public Health

Statement of the Problem: An outbreak of Rocky Mountain Spotted Fever with greater than 251 confirmed cases occurred in Mexicali, Mexico in Feb 2009. The brown dog tick (Rhipicephalus sanguines) was identified as the vector. VIIDAI is a binational academic public health and clinical program conducted biannually in an indigenous colonia in San Quintin. Mexican health officials requested the fall VIIDAI to incorporate a public health assessment of basic knowledge of tick borne diseases in the community, and environmental and household factors that would contribute to the spread of the infection. Findings of this study will identify potential areas for intervention regarding tick control for future community health education programs. Methods: A survey tool utilized by the Mexican government was adapted for a cross-sectional community-based quantitative data collection. Teams of UABC (Universidad Autonoma de Baja California) and SDSU students utilized an interviewer-assisted paper questionnaire in Spanish. At the end of the interview a rickettsia-related brochure was shown for educational purposes and forceps for appropriate tick removal were provided and demonstrated. Results: In total, 163 residents participated in the survey. 59.5% of respondents reported owning a dog and 33% indicated seeing a brown dog tick in their home. Controlling for age and gender, people who did not own dogs were 0.45 times less likely (p=0.04) to report seeing a tick in their home versus those who owned dogs. 38% of residents indicated hearing a tick-related public service announcement (PSA) and 15.3% heard of rickettsia. Residents who indicated hearing a PSA were 4.13 times more likely (p=0.004) to report being familiar with rickettsia compared to those who did not hear a PSA. Participants living next to an empty lot reported it contained trash; 89.5% mentioned having seen rats in the empty lots. Conclusion: Most study participants had no knowledge of tick borne diseases, including rickettsia. The prevalence of dogs and rats in the community suggest the colonia is an environment conducive to harboring tick populations. Future research is necessary to determine which methods of tick prevention (collars, medicinal baths) would be most practical and acceptable for the community.

#260 4:15

Knowledge, Attitudes and Practices Associated with H1N1 Influenza in Colonia Lomas de San Ramon, in San Quintin, Baja California Mexico.
A Project of VIIDAI 23, Fall 2009.

Justin Curole, Public Health (M)
Emmanuel Rudatsikira, Graduate School of Public Health

Problem: In April 2009 a novel strain of influenza virus (2009 H1N1) emerged with early cases in San Diego, California and Mexico City, Mexico. Mexican health officials requested that VIIDAI 23, conduct a knowledge, attitude, practice (KAP) survey regarding H1N1 in the Colonia Lomas de San Ramon in San Quintin, Baja California. VIIDAI is a cross-border public health consortium of universities including SDSU, UCSD and UABC that addresses pertinent health problems of indigenous colonias in San Quintin, Mexico. Methods: The VIIDAI research team adapted a cross-sectional survey developed by CDC’s Binitational Infectious Diseases Program. Demographics and information on H1N1 awareness, transmission, prevention and treatments was
collected. Participants included residents from the semi-rural Colonia Lomas de San Ramon. At the conclusion of the survey, participants were shown an illustrated influenza prevention brochure and were given a container of hand sanitizer and package of facial tissue as incentive. Results: A total of 152 residents participated in the community-based study with 71.2% women. Approximately 49.7% of the participants reported an Influenza-Like-Illness (ILI) within the previous three months. Most residents (64.5%) lived in households with 4-7 people with higher numbers of occupants significantly associated with an ILI. (p=0.0305). 79.5% believed that antibiotics could be used as a preventive measure. Most participants reported having heard of H1N1 (93.9%), and 78.7% thought that it could be transmitted from person to person. The belief that greeting an infected person with a handshake or kiss was not a mode of transmission for H1N1 was associated with a prior ILI (p=0.0358). When comparing season influenza to H1N1, participants thought that elderly (72.1%) and children (83.7%) were more likely to become ill. Conclusion: Nearly half of the community participants were aware of H1N1, knowledge of modes of transmission was a protective factor, as was fewer household residents. There was misinformation regarding antibiotics and the risk groups of pregnant woman and healthy young adults. Future research should focus on quantifying these gaps and use them to target prevention efforts.

#261 4:30
Teen Pregnancy in La Paz, Baja California Sur, Mexico
Trevor Stine, Latin American Studies (M)
James Gerber, International Business

The education outcomes and sexual knowledge/practices of young women who live in La Paz, Baja California Sur, Mexico and experienced pregnancy before they reached 20 years of age is the subject of this thesis. The data reported are from a local convenience sample of La Paz women between the ages of 18 and 28 years old. The analysis addresses three questions: 1. What are the education outcomes of the young parents? 2. What is their birth control knowledge and usage? 3. Where do they live? Three hypotheses are tested: Women in La Paz who gave birth before their twentieth birthday will report: 1. worse education outcomes 2. less birth control knowledge and use 3. residing in poorer areas than those women who gave birth during their twentieth year of age.

Session B-19
Oral Presentation: Issues in Education
Friday, March 5, 2010, 3:00 pm
Location: Council Chambers

#262 3:00
Assessing a Mindfulness Course for Middle School Students
David Viafora, Social Work (M)
Sally Mathiesen, Social Work

Over the last two decades, research concerning mindfulness-based interventions for adults has increased greatly. The interventions are used to treat a variety of mental health issues and improve psychological well-being. Mindfulness practice helps to foster one’s awareness of both internal and external experiences as they take place in the present moment. While applications of mindfulness training with children and adolescents have demonstrated feasibility and acceptability, empirical testing with this population is just beginning. Preliminary results show positive outcomes in measures of cognitive and emotional well-being. Very few studies have measured the success of mindfulness-based interventions with youth in school settings, and most report findings of treatments using only selected elements of mindfulness. Despite the paucity of empirical research, mindfulness-based initiatives for youth are growing steadily throughout the country, especially in school-based settings. To the author’s knowledge, no studies have empirically tested a strictly mindfulness-based intervention with middle school students in a school setting. The purpose of this study is to evaluate the feasibility, acceptability and benefits of a modified mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1990) course with this population in a classroom setting. Using a quasi-experimental design, the study hypothesis is that students in the mindfulness intervention group will show improvement in measures of mindfulness, psychological flexibility, and self-compassion. Participants include students from four separate classrooms at two middle schools who will be given a pre-test, post-test, and follow-up assessment. One waitlisted classroom will serve as a non-equivalent comparison group. One classroom of participants is from a local middle school that serves youth who have been recently homeless or are currently living in a homeless shelter. To the author’s knowledge, no empirical studies have been conducted specifically with youth who are living in a homeless shelter. The investigator is working with a non-profit organization which offers mindfulness courses to various local schools. Data collection is ongoing; outcomes are expected to add to the growing base of empirical evidence guiding the application of mindfulness-based
interventions with youth in a school setting, and offer preliminary support for the feasibility and acceptability of interventions with youth living in a homeless shelter.

**#263  3:15**

**Do Minorities Decrease Average Daily Attendance? A Quantile Regression Approach...**

Zadkiel Elder, Economics (M)
Christina Hilmer, Economics

Average Daily Attendance (ADA) is important to school districts based on the per pupil disbursement of school funding. Every decrease in ADA translates into a decrease in the amount of money school districts receive from the state and local government. Testing anthropological theories of minority schooling motivation, I argue that average daily attendance (ADA) as an output variable. I also argue that ADA is influenced by increases in the percentage of each ethnic group. Exclusively using California Department of Education Data and quantile regression estimation, I find that Hispanics and White students increase ADA while Black students decrease ADA. Asian students have mixed effects on ADA depending on the size of the school district they are enrolled in. A detailed explanation of quantile regression and policy recommendations related to ADA are discussed.

**#264  3:30**

**Case Study: A Southern California Dual Language Program**

Pilar Vargas, Curriculum (M)
Cristina Alfaro, Policy Language in Cross Cultural Studies

Current demographic trends reveal that we are in the midst of an extraordinary shift in California’s K-12 student population, with the ethnic and linguistic diversity of our schools increasing dramatically. For example, nearly one-third of the nation’s English Learners (ELs) are found within California (California Department of Education, 2006), with a total of 1,571,463 students in California identified as English Learners (ELs) during the 2007–2008 school year. These numbers represent an increase of nearly 20 percent between 1997-98 and 2007-08 in California’s EL student population (California Department of Education [CDE], 2006). Dual Language Education is important in the changing demographics of the United States, particularly in California where over 60% of students speak a language other than English. When researching dual language programs in California, there are several elementary schools. However, there are a few, if any, dual language high schools. The following research questions will guide this study.

**Major Research Question:** What is the significance on academic achievement of implementing a research based Dual Language Program at the secondary level? Research Sub-Questions:
1) What are the major connections between bilingualism and academic success? 2) How can dual language programs in the elementary schools be utilized as models to effectively implement at the secondary school level? 3) How does bilingualism affect academic success in the dual language program at Southwest High School? The purpose of this study is to provide both qualitative and quantitative research through a case study on a successful dual language program, in Southern California, promoting Dual Language Education in a high school setting. This study will describe the challenges of implementing a dual language program as well as the positive outcomes for the school site and the students. There has been a lack of data and information regarding dual language programs beyond the elementary school level. This case study examines how a Dual Language Program operates in a Southern California High School.

**#265  3:45**

**Effective Characteristics of a Dual Language Program: A Need for Divergent Intervention for English Language Learners at La Escuela**

Julia Parra, Policy Studies in Language & Cross Cultural Education (M)
Alberto Ochoa, Policy Studies

An increasing number of schools in San Diego are offering Dual Language Immersion programs as educational options to meet the needs of both language minority and language majority students by developing high levels of bilingualism, biliteracy, and a cross-cultural awareness to prepare students for life in the 21st century. In most cases, these programs are initiated with well-intentioned practitioners and administrators too quickly without looking at key characteristics of effective Dual Language Immersion Models. Given the variability of the individual program design and delivery, this study provides a description of key characteristics that are critical to success in a Dual Language (DL) program. The focus of this study was on “La escuela,” a pseudonym given to a school in a San Diego school. A qualitative approach demonstrated implementation of a Spanish Immersion 90:10 model at the school site. The study explored demographic language patterns at the school site for the 2005-2008 school years, assessment data results of California Standardized Tests (CST) for eighteen English Language Learners (ELLs) in Spanish Immersion classrooms and eighteen English Language Learners in Structured English (SE) classrooms for the 2006-2008 school years. Twenty-seven parent surveys, sixty-three student surveys, and six parent and teacher interviews provided data about socio-attitudes of parents, teachers and students regarding implementation practices of the Spanish Immersion Program model at La escuela. Program recommendations include a need to advocate for English Language Learners in order to move towards an exemplary Two-Way Bilingual Immersion Program model (Lindholm-Leary K., What is Dual Language Education?, 2007).


#266 4:00

**Service Project for Education Without Borders**

Linda Sanchez, Applied Anthropology (M)
Frederick Conway, Anthropology

This research was an applied anthropology project on behalf of the SDSU student organization, Education Without Borders (EWB), which is concerned with the California law, AB540. My team of anthropology students designed and conducted research to learn about the knowledge and attitudes of SDSU faculty and students about AB540 issues. We used a survey and a focus group in the research. AB540 status allows qualified undocumented students to be exempt from paying significantly higher out-of-state tuition at public colleges and universities in California. However, they are not eligible for student loans, grants, financial aid or scholarships. EWB wants to change the policy that states that AB540 students cannot receive scholarships. In order to go about this they wanted to get a sense of how faculty and other students feel about the issue. The questions for both our survey and focus group were mainly concerned with whether people knew about AB540 students and whether they thought they should be able to receive scholarships. Our survey methodology was as following; we sent out 130 e-mails surveys to faculty members randomly selected from each department at the university. Of the 130 surveys that were sent out, 20 responses were received, a 15% rate. Our findings show that 65% of the faculty that we surveyed were aware of AB540 students, and 73.3% thought that it was unfair for them to be denied scholarships. From our focus group, only one person knew what an AB540 student was. However, everyone agreed that AB540 students should be eligible for scholarships and grants. From our research, it seems that not too many people know about AB540 students and the circumstances they find themselves in. Our biggest recommendation to EWB was to try to create a greater awareness of who an AB540 student is, and educate SDSU faculty and students of the difficult challenges faced by AB540 students. This study was conducted in Anthropology 531, Methods in Applied Anthropology, in which the students were asked to find a client and a project, design the research and prepare a report for the client.

#267 4:15

**Basic Skills and Global Competencies for Business Major Graduates: A Comparative Study of California Community Colleges’ and Employers’ Perspectives.**

Irina Weisblat, Educational Leadership/Community Colleges (D)
Marilee Bresciani, ARPE

The projected shortage of skilled workers for the global economy elevates concerns about California’s economic growth and competitiveness in the world. The purpose of this study was: (a) to identify basic skills and global competencies that business major graduates from community colleges need in the global economy; (b) to determine employers’ demands towards the skilled workers in the 21st century; and (c) to examine how well California community colleges have adjusted their business curriculum in order to meet the needs of employers operating in the global business environment. This purpose was achieved by using survey methodology, which analyzed data collected from two populations: community college educators and business leaders. Perspectives of managers from randomly selected companies in California, as well as business deans, business faculty, and career advisors from California community colleges, were compared utilizing statistical tests (t-test, ANOVA, and MANOVA) that measured differences in their views. This comparison shed light on the issue of effectiveness of business education in community colleges. At the same time, the study also examined employers’ satisfaction with the business major graduates’ academic preparation and their readiness to function productively in the global economy. The findings uncovered in this research point to the differences in California community college educators’ and employers’ views of skills and competencies expected from graduates with a business major. All respondents concurred that basic skills were more important than global competencies for students’ success in the global marketplace. Yet, the two populations had contrasting opinions about the quality of teaching of the job-related skills and relevance of business curriculum to the economic needs. This gap between educators’ and employers’ perspectives suggests that more can be done to align the community colleges’ business curriculum with the expressed needs of the business community in California.

#268 4:30

**Exploring the Implementation of Characteristics of Quality Service-Learning Programs in a Two-Year and a Four-Year Institution**

Lauren Weiner, Educational Leadership: Community College/Post-secondary Education (D)
Dr. Marilee Bresciani, ARPE

The purpose of this cross-case comparative study was to explore through a constructive lens, the characteristics that lead to sustainable, high quality service-learning programs and how they are implemented at a public two-year institution and a private four-year institution. The findings from this study may be noteworthy for educators at community colleges and universities, who are at various stages in developing service-learning programs, or who are transforming faltering programs, trying to make them sustainable. As part of my study at the University of the Coast and Western Community College, I conducted one-on-one interviews with students, faculty, and/or staff, and community partners in addition to conducting student focus groups, document analysis, and observations. I determined that the University of the Coast...
In discussing post-colonialism, there is a tendency to assume that we are inhabiting a "post" colonial world, as though we are some how past the colonization of entire peoples. I challenge this assumption by asking: How can we be post or past colonialism when the remnants and wounds of colonization are still realities for communities of people who have been historically and present ly impacted by the process and act of colonization? Furthermore, in what ways are these realities being addressed and does a dialogue on postcolonial studies necessarily attend to the brutal truths that these communities face on a daily basis? With these questions in mind, the urgency to innovatively approach the impact of colonization and the ways in which communities of colonized peoples are coping with colonization is imminently apparent. Therefore, drawing upon a profoundly conscious reading and examination of Louise Erdrich’s Love Medicine, her award-winning novel that is compiled of several fictional narratives from a Native American community, I explore both the impacts of colonization and the means by which the characters live and survive the repercussions of colonization. From this analysis, I argue that Louise Erdrich’s Love Medicine not only illustrates the realities of the community of Native Americans in the novel, but also offers the hope and possibility of a healing of the impacts of colonization through decolonization by way of physical and emotional intimacy. In particular I analyze Erdrich’s usage of touch, in a physical and metaphorical sense, as a form of love medicine that is capable of decolonizing and healing an entire community. Erdrich, Louise. Love Medicine. Expanded ed. New York, NY: Harper Perennial Modern Classics, 2005.

**#270 3:15**

**The Role of the Hemingway Hero in the Novels of Terry Pratchett**

Steven Wood, English (U)  
Quentin Bailey, English

This presentation is based upon my bachelors’ thesis of the same title. It will explore the significance of the hero in the works of Ernest Hemingway and Terry Pratchett, and will consider the how and why Pratchett employs the same character types as are found in Hemingway. The bulk of the presentation will be rooted in a textual analysis showing the appearance of the Hemingway hero in the Pratchett novels, particularly in the recurring characters, and in evaluating the significance thereof to Pratchett’s overall project.

**#271 3:30**

**Ideological Subversion in the Eighteenth-Century Novel: A Marxist Analysis Of The Concept Of Individuality in Evelina and The Female American**

Kyle Baudour, English (U)  
Edith Frampton, English & Comp Lit

In looking backwards to the eighteenth-century English novel, the revelations of post-Marxist philosophers in the past half-century can be used as modes of analysis. These allow new concepts to be drawn out of the novel and reveal the hegemonic control that remains unspoken in them. Reading Frances Burney’s Evelina and the anonymous narrative of Unca Winkfield in The Female American through a post-Marxist lens, Althusser’s concept of Ideological State Apparatuses become exposed as the prevailing forms of control. These forms of control show the female protagonist in each of the books as manipulated by the state and society to further propagate the norms of the society and further the state’s hegemonic control that is already imposed onto her. A false individuality becomes the way, as if by virus, that this control is spread. By falsifying a concept of individuality, the character and society as a whole are allowing pre-existing Ideological State Apparatuses to further the ideologies of the state.
#272  3:45  
**Solutions Through Stories in Silko’s Ceremony**
Neal Fischer, English (M)  
Jane Robinett, Rhetoric and Writing  
Challenging narrative forms is a method for an individual to challenge standards, assumptions, and oppression imposed by larger cultural systems. In Ceremony, Leslie Marmon Silko takes up this narratological challenge by conflating the cultural norms of traditional Western – or European – storytelling and the storytelling of the Laguna tribe of Native Americans. Set on a reservation following World War II, the characters living in this cultural space find themselves caught between the traumas caused by a warfare their ancestral background has no reference for and desolation in the present. As her novel works through the problems and strengths of a combination of narrative stylistic elements, Silko then collapses notions of cultural and gender dichotomies in her protagonist, Tayo. What emerges from this fusion is an exposure of the dangers of strict boundaries in contemporary America. The novel deconstructs notions of both the modern American soldier and the traditional Native American warrior, reassembling the components to create a multidimensional cultural warrior who has the ability and wisdom to choose between disparate narrative arches, one with the power to end life and one with the power to preserve it. In a rejection of violence, Tayo finds solutions through the actions of creating and telling stories that are original in both content and form, exactly as Silko herself does.

#273  4:00  
Irina Chukhray, Women’s Studies (M)  
Esther Rothblum, Women’s Studies  
Children learn stereotypes from a very young age through mimicking and copying. Children also learn many things from books. Many children’s books published between 1970 and 1983 were sexist, racist, and homophobic. This paper analyzes books published between 1970 and 1983 in order to determine whether book published during this time period were influenced by the Second Wave movement of feminism. Surprisingly, the books show a very small influence from the feminist movement. Some books had representations of non-nuclear families but the representation was very limited. This study investigates depiction of interracial couples and couples of color in general, representation of the LGBTQ community, and analysis of gender in children’s literature. The results indicate that the LGBTQ community was almost entirely absent in the books during this time period. Only one book had an interracial family. Many books represented Asian Americans stereotypically. Some publishers attempted to gloss over their stereotypical representations of African Americans but the result was an attempt to assimilate the character into a white ideal. This analysis, in large part, demonstrates a lack of social consciousness among these issues despite an era of massive cultural change.

#274  4:15  
**Women Like Us: Resistance and Subversion in Caribbean Women’s Literature**
Ashley Greenwood, Women’s Studies (M)  
Elizabeth Colwill, Women’s Studies  
We live, every increasingly, in a world of so-called “posts”: A(fter) D(eath), post-9/11, post-feminist, post-colonial. Truthfully, “post” is just a word— and often times what should be seen as a historical marker is taken for a social and cultural reality. Colonialism doesn’t just disappear after emancipation. This paper examines the ways in which globalization has paradoxically allowed for a new transnational women’s movement in the form of diasporic, post-colonial women’s writing while perpetuating the political, cultural, and economic dependence of the global south on the nations of the global north. It focuses upon three Caribbean writers—Jamaica Kincaid (Antigua), Edwidge Danticat (Haiti), and Michelle Cliff (Jamaica)—who portray the effects of a colonial past, a neo-colonial present, and an uncertain future in terms of claiming an individual and national identity. These fictions are also a place of reclaiming—the reclaiming of silenced heroines and silenced histories. These authors use the medium of fiction to confront issues of national and personal trauma by exploring the legacy of colonialism and the reality of a life where formal political independence and globalized dependence coexist.

#275  4:30  
**Violence in Domestic Spaces**
Shannon Brown, British Literature (M)  
In this presentation I will examine the importance of domestic space in works of Victorian English literature and the effects caused by violent disturbances within that space. I will apply Gaston Bachelard’s theories as found in The Poetics of Space as well as more recent works on the subject in order to identify the relationship between female Victorian characters and their domestic space. I will then examine how violence in these domestic spaces does or does not affect the relationship between character and surrounding. With this research I will also address the role of
females in English Victorian society and how their treatment in the literature of the time answers concerns raised by the expansion of the women’s political rights in 1811. I plan to apply this research to well known works (potentially Wuthering Heights, Great Expectations, Dracula, and Mary Barton) in order to encourage a wide spectrum of audience interest.

Session B-21
Oral Presentation: Environmental Issues
Friday, March 5, 2010, 3:00 pm
Location: Presidential Suite

#276 3:00
**A Day in the Life of an Avocado**
Efrain Galavic, Environmental and Sustainability Studies (U)
David Larom, Asia Pacific Studies Department

In today’s growing global economy, there has come a point where foreign goods are saturating local markets and rendering local products unsuitable to compete. There is also a move towards a “green revolution,” where products are labeled as organic. How can we be sure that produce with “organic” labels truly are grown chemical free? And why is Mexican produce cheaper than locally grown produce? These are the essential questions that I will be tackling. I hope to expose the language of the North American Free Trade Agreement and explore the “green” labeling of products. Filming a documentary on “A Day in the Life of an Avocado,” will be my primary form of research. The three main viewpoints that will be showed are Mexican grown avocados, SDSU owned avocados grown at the Santa Margarita Ecological Reserve, and organic avocados grown in California. I will conduct interviews with farm owners, grocery store managers, consumers, etc. to get a better understanding of how the system works. Along with the documentary I will research supply and demand trends and the language behind NAFTA. With this research I hope to answer questions such as why Mexican produce is cheaper than local produce and find out if organic labels truly follow their claim. Essentially, I hope to find a solution to the growing problem of cheaper foreign goods saturating our local markets and find out who is reaping all the benefits.

#277 3:15
**Solar Water Security**
Peter Noel, International Security and Conflict Resolution (U)
David Larom, Asia Pacific Studies Department

Contaminated water is a major cause of disease in the developing world. Solar water distillation is a proven method that can purify even the dirtiest of water. However, current implementations are expensive, site-specific and difficult to transport. Also, poor choice of construction materials by inexperienced builders can even retoxify the distilled water if it is not channeled by and stored in nontoxic materials. This project aims to develop a technology for mass production of a safe, low-cost nontoxic liner that would ensure the quality of the distilled water. Any locally available materials could then be used to build the framework of the still. We will produce an injection-molded solar still liner from food-grade silicone. The liner will be lightweight, low-cost and collapsible for easy transportation. Once onsite, one need only unpack the liner, glue a piece of glass on top, build a support for the water tray and align the still to the sun. The water will touch only the silicone. Utilization of local labor and building materials for the rest of the still ensures a low cost way to distill brackish water, ocean water or even sewage. We believe this could be a revolutionary technology, bringing still costs down an order of magnitude from the $200 range to the $20 range. The liner will also make it far simpler to construct and service stills onsite, which will assist in spreading the technology. We will build several demonstration models showing how the same liner can be used to build a working still from diverse local materials. We will also document the injection-molding process and discuss its effectiveness for mass production and quality control.

#278 3:30
**Tawi-Tawi Water Purification Project**
Travis Alexander, International Security and Conflict Resolution (U)
David Larom, ISCOR/Asian Studies

Waterborne disease is a major issue in the world, playing a part in 75% of global hospital admissions. The long term solution would be to stop pollution of water sources, but a more immediate solution—water purification—is also necessary. There are several types of water purification including filtration, chemical methods, UV (ultraviolet light) and combinations thereof. Phase 1 of the Tawi-Tawi Water Project (TTWP) deployed ten first-generation “UV Bucket” sterilization systems for use by community health workers (CHW’s) in the southern Philippines. The UV Bucket is advantageous because it uses little power (19 watts), leaves no
Aromatic Hydrocarbons in Household Dust

Aromatic Hydrocarbons in Household Dust

Eunha Hoh, Graduate School of Public Health
Richard Hunt, Environmental Health (M)
Darrel Moellendorf, Philosophy (M)
Daniel Callies, Philosophy

Impact of Environmental Tobacco Smoke on Polycyclic Aromatic Hydrocarbons in Household Dust

Richard Hunt, Environmental Health (M)
Eunha Hoh, Graduate School of Public Health

Environmental Tobacco Smoke (ETS) is a major contributor to indoor air pollution. It is a mixture of over 4000 chemicals, many of which are known carcinogens. Exposure to ETS can occur via air, dust and surfaces. Dust and surfaces may remain contami-nated long after active smoking has ceased (an exposure route known as “third-hand” smoke). House-dust is likely an important exposure pathway for the chemicals in ETS for young children.
Children ingest and inhale up to twice the amount of house-dust than adults and are 10 times more sensitive to the toxic effects of ETS than are adults. Polycyclic Aromatic Hydrocarbons (PAHs) are a subset of the chemicals commonly found in house dust. Many PAHs are known for their carcinogenicity and they account for up to 25% of the mutagenicity of house dust. Here we investigated the association between ETS and PAHs in house dust. House dust was collected from the homes of 150 families living in urban areas of San Diego with at least one child under one year of age, using the HVS4 cyclone vacuum system. PAHs were extracted from the dust using established methods and were analyzed using gas chromatography with mass spectrometry. When results were expressed in ng/g, total B2 (sum of probable carcinogens) PAHs and total PAH concentration in house dust were 1.7 and 1.3 times higher respectively from smoking as compared to non-smoking homes. When expressed as surface loading, ng/m², this elevation was even more pronounced, with PAH compounds ranging from 1.4 times higher to as much as 2.6 times higher. PAHs in house dust (ng/m²) from the children’s rooms were compared to that from the living rooms (\( r=0.69, p < 0.001 \)), indicating that ETS spreads throughout the home. These results suggest that ETS is a significant contributor to PAH surface loading and PAH concentration in house dust and that smoking in one area of the home does not adequately protect others from ETS. The only way to reduce the exposure to those of non-smoking homes is to ban smoking indoors completely, or preferably, have all family members stop smoking altogether.

#282 4:30

The Impact of Personal Health on Global Climate Change: an Example of the Scale-free Nature of Health

Nathan Daley, Public Health - Environmental Health (M)  
Zohir Chowdhury, Public Health

“Introduction: Anthropogenic climate change is a critical challenge to humanity which generates passionate debate. Countless opinions on the importance and mitigating strategies of climate change continue to emerge. This subject addresses a complex system which has been persisting and evolving for billions of years and includes the totality of living organisms on earth, including humans. Yet, this subject is addressed from the external (i.e. objective) and reductionist perspective of modern science which implies that mitigation and adaptation must directly address greenhouse gas emissions. This perspective fails to investigate the more indirect and profound causal origins of anthropogenic climate change and, worse, fails to recognize the convergence of numerous co-originating modern day dysfunctions in need of a focused and cohesive response. This discussion attempts to address anthropogenic climate change at the level of this convergence, individual human-environment interactions, and explore the singularity of individual health and biospheric health in terms of climate impact. Methods: The gene-environment concordance theory of achieving individual health was applied in an evolutionary context to identify concordance generating human-environment interactions. It was assumed that an 80% success at accomplishing these human-environment interactions was reasonably realistic. A best case scenario in which the U.S. population collectively achieves this 80% success on average was used to predict subsequent changes to U.S. production systems, resource utilization, and land use characteristics. The subsequent impact on greenhouse gas emissions from these system changes over 100 years was then estimated and compared to IPCC scenario models. Results: The direct health scenario reduced anthropogenic greenhouse gas emissions 70% from 2000 levels over 100 years, which is 20% lower than the IPCC lowest emission scenario. Conclusion: The pursuit of optimal individual health and wellbeing through gene-environment concordance would collectively re-structure economic and industrial systems to reduce anthropogenic greenhouse gas emissions in excess of the IPCC best case scenario model, while prioritizing the acquisition of human health directly, rather than indirectly through top down regulations and reforms. The prioritization of individual health and wellbeing through gene-environment concordance frees the individual from a culturally imposed self-sacrifice while empowering the individual to address global scale phenomena.

Session B-22

Oral Presentation: Influences of Art and Literature  
Friday, March 5, 2010, 3:00 pm  
Location: Quetzalcoatl A

#283 3:00

Rendering of a Mulata: The Discovery and Rethinking of Mulatas in Spanish Colonial Art

Tashima Thomas, Art History (M)  
Nancy Deffebach, Art, Design, & Art History

During colonialism, approximately 250,000 to 500,000 African slaves were brought to New Spain. As a result, an increasing mulato/a population emerged creating an expanding social hierarchy within the culture of New Spain as graphically illustrated most notably by the Casta Paintings of Mexico. Cuba also experienced an economic boom due to the insatiable sweet tooth...
of Western Europe. This strategically located island demanded a sophisticated system of engineering to process the sugar cane, as well as, a plantation system of slavery that increasingly required more slaves from Africa. Yet, the contributions to the canon of Afro-Mexican (hi)stories and Afro Cubanidad have provided very limited gender discussions and produced few scholarly art historical discussions of mulatas in colonial Latin American art, until now. Mulatas traversed a tempestuous sea of increasing fear and anxiety by the Spanish elite, as well as, struggled with gendered subjectivity and the inscribed image of the mulata body. These efforts to control are seen in the casta paintings of Mexico and on the cover of cigar boxes, called marquillas, in Cuba. The mulata is portrayed stereotypically as a cigar-smoking, mythically oversexed siren and sometimes as a subject of domestic tranquility. These portrayals may be the result of moral and sexual guilty consciences played out in popular culture through paintings, poetry, or literature. While I examine casta paintings servicing as propaganda for the crown to discourage mestizaje or miscegenation as a means of controlling its population, my thesis also examines the possibility of a less myopic approach by examining certain images of mulatas in a way that suggests the forbidden – as family portraiture. I also examine the mulata body as a sign signifying the proto-nationalist through religious iconic imagery in Cuba where she is represented and dually worshipped both as Catholicism’s Virgen de la Caridad and as Santeria’s Orixá Ochun. These methodologies offer a groundbreaking investigative research study in art history as I endeavor to contribute meaningfully to the discourse of Latin American art.

#284 3:15

The Trial and Execution of the Cazonci Tzintzincha Tangaxoan: Cruel and Unusual Punishment?

Fernando Serrano Jr, Latin American Studies (M)
Paula De Vos, History

On February 14, 1530 the Cazonci Tzintzincha Tangaxoan, native ruler of the Purépecha people of Michoacan, was sentenced to death and executed by the conquistador and president of the first Audiencia of New Spain Nuño de Guzman for supposedly committing several crimes against the Spanish settlers in the region. The Cazonci’s execution elicited, almost immediately, a public outcry against what many considered an abuse of authority and the use of excessive cruelty by Nuño de Guzman. The accusations against Nuño de Guzman may have been correct but the fact that the execution elicited widespread condemnation has been used to suggest that his actions were an aberration of normal Spanish conduct during the Conquest of Mexico. In this paper, my goal will be to show that the trial and execution of the Cazonci Tzintzincha Tangaxoan, rather than an aberration of normal Spanish conduct during the Conquest, is an example of a systematic approach by the Spaniards in dealing with native rulers throughout the region and that indeed it was of fundamental importance for the eventual victory of the Spaniards over the indigenous peoples of the continent. Also, I would like to suggest that the fact that the execution elicited widespread condemnation can better be understood because of the post-conquest political milieu of Mexico rather than because of the actual moral outrage felt by the Spanish settlers of the region. The trial and execution of the Cazonci Tzintzincha Tangaxoan may have indeed been cruel but it was definitely not unusual.

#285 3:30

Cortes’s Conquest of Spain by Means of the Segunda Carta to Carlos V

Hernan Negrete, Spanish (M)
Mario Martin Flores,

Cortes used his writing skills in his Second Letter to Charles V to manipulate the facts which actually took place after his arrival in the New World. While it is known that Cortes conquered the New World, it could also be stated that he conquered Spain by means of the Segunda Carta because of the narration he provides about what actually “happened”. In 1529, this manipulation of the facts granted him the title of Marquis of Oaxaca. Throughout the letter he portrays himself as the sole participant of the conquest of the New World, he does not give credit to the other Spaniards who accompanied him nor to the indigenous tribes which participated and who also contributed to the conquest. His writings promoted future expeditions to the new world, because the descriptions he provided about the society in the new world made it look very vulnerable, as if the land was waiting to be conquered. Everything in the new world was beautiful, society seemed vulnerable and pacific, and economically it could produce a lot. These descriptions and the sharing of the military tactics used during the conquest promoted the sponsorship of more expeditions to the new world. Proof of that is the fall of the Inca empire which occurred after the conquest of Mexico.
#286 3:45

**Residual Orality in Cortés’ Segunda Carta de Relación: How Rhetoric and Technology Converted a Mutineer into a 16th Century Luminary**

Dexter Hough-Snee, Spanish (Latin American Literature) (M)
Alda Blanco, Spanish and Portuguese

To twentieth century audiences, Hernán Cortés’ “Segunda carta de relación” is relatively well known for its documentation of the conquest of Mexico, a mutinous undertaking in direct defiance of colonial authorities. However, following the publication of his letter in Sevilla on November 8, 1522, the Iberian public almost immediately revered Cortés as a celebrity and hero. Publication in a dozen languages soon followed and Cortés enjoyed such popularity throughout Europe that Spanish authorities ultimately banned his work, this to prevent Cortés from garnering sufficient public support to undermine the authority of the crown and papacy. Certainly, Cortés’ text was well written and the events recounted within are incredible by any historical standard, but how did Cortés achieve such immediate, legendary status across all sectors of Iberian society? What were the factors that contributed to Cortés’ overwhelming popularity, especially in an era when illiteracy dominated and print culture was still in its infancy? Utilizing the theoretical work of Walter Ong and the historical literary perspectives of Irving Leonard, I propose that Cortés enjoyed such a tremendous rise in popularity with the sixteenth century Iberian public for three reasons: the appearance of his text in the recently introduced print medium; the presence of strong residually oral tendencies in his written work making his narrative accessible to the illiterate majority; and the discursive proximity of his text to the immensely popular works of other popular culture of the era, specifically the chivalric romance genre. When compounded, these three phenomena enabled a document detailing an act of insubordination to project Cortés’ public persona to heights unrivaled by laypeople in post-medieval Spain.

#287 4:00

**What is all that Noise? Mike Patton and the Present of Italian Futurism**

Lawrence Rizzato, Musicology (M)
Eric Smigel, Music

Mike Patton is an artist who transcends musical categories. He sings and collaborates with several experimental rock groups, performs selections from Italian opera, and composes music for films and videos games. While listening to Patton’s music one can hear the fusion of many genres and that he frequently draws his musical ideas from the principles of futurism. A multidisciplinary movement that emerged in the early 20th century, futurism celebrated the relationship between humans and technology and called for the use of noise as an integral part of a musical composition. In his manifesto *The Art of Noises* (1913), futurist composer Luigi Russolo asserts: “We must break out of this limited circle of sounds and conquer the infinite variety of noise sounds.” Russolo and his colleague Ugo Piatti, built twenty-one intonarumori, crude noise instruments that produced sounds resembling the environments of industry and the forces of nature. Based on pictures and descriptions, instrument maker and artist Luciano Chessa reconstructed sixteen of these noise intoners, and recently commissioned Patton to write music for them. After studying the *Futurist Manifesto* (1909) and *The Futurist Cookbook* (1932) by poet F. T. Marinetti, Patton composed *Pranzo Oltranzista* (1997), a contemporary expression of the futurist aesthetic. The aim of this preliminary study is to identify commonalities between Patton and the futurist movement by comparing a selection of his works in relation to the writings by Italian futurists. Through a detailed analysis of Patton’s recordings with Mr. Bungle, Fantômas, Pranzo Oltranzista, and the commissioned work for intonarumori, a direct link between Patton and futurism will be established, thereby revealing a consistent mode of creativity among a diverse repertoire.

#288 4:15

**Images of Power: Projections of Thoughts, Politics and Beliefs Through Art**

Joel Mauel, Classics (U)
Joseph Smith, Classics and Humanities

The use of art as a political statement, documenting two persons of interest, Augustus Caesar and Duke Cosimo I, their similarities and differences.

#289 4:30

**Ricas y Famosas, the Camp-Fire: Fetishizing the Body, the Object and the Photograph**

Lauren Ross, Art History (M)
Jo-Anne Berelowitz, Art History

Daniela Rossell is a contemporary Mexican photographer who in 1994 began shooting the pictures of her friends and family that would become the 7-year project compiled in her highly debated *Ricas y Famosas*. The series almost exclusively depicts the bleach blonde, seductively, self-posed women inhabiting the strange and exclusive world of Mexico City’s wealthiest residents, resulting in an almost surreal glimpse into a society of brazen profligacy, where the women perpetually bask with ennui amidst their faux Louis XIVth like surroundings. The work of Rossell can be viewed through multiple lenses depending on the perspective of the viewer. While, historically, the work has been seen as a commentary on Mexican socio-political conditions, this paper
Session B-23
Oral Presentation: Biosensors and Devices
Friday, March 5, 2010, 3:00 pm
Location: Quetzalcoatl B

#290 3:00
Sensor Development for a Robot: Autonomous Human Avoidance

Marcus Schaffer, Electrical Engineering (U)
Gordon Lee, Electrical Engineering

Ultrasonic and thermal sensors are key building blocks and vital tools in the advancement and development in the field of robotics. Ultrasonic sensors have many applications such as human detection, motion control, detection of the levels of liquids and solids, security, proximity sensing, dimensioning, and positioning. Some features and benefits of using an ultrasonic sensor include the ability to measure objectives from short and long range distances, the sensor is unaffected by object color or other optical characteristics and the target object does not need to be touched in order to extract range information. The thermal sensor provides the ability to sense heat characteristics of an object, detecting the absolute temperature. The particular sensor used in the present research is the TPA 81 Devantech thermal array sensor which measures the absolute temperature of 8 adjacent points in its field-of-view simultaneously. In the present research, the precision and autonomous ability of the sensors attached to the robot will be used to detect animate objects (humans and animals) and inanimate objects (for example, walls or trash cans). The ultrasonic array of sensors, along with a thermal sensor, will provide range information which will assist in locating animate objects and obstacles to locate living matter in free space. The feasibility of the autonomous human avoidance research is extremely important because injuries and accidents can be a result of a robot being unable to decipher a human or an animal in its path. Robot avoidance will enable the robot to go a different route when an object is detected, thus preventing an injury and completing its task.

#291 3:15
Automated Pneumatically Driven Violin Playing Robot and Using the Technologies in a Theatrical Setting

Eben Algire, Theatre Arts (Lighting Design and Technical Direction) (M)
Loren Schreiber, Theatre Arts (Technical Direction)

The goal of my project was to mechanically operate a violin using pneumatics within a consistent aesthetic universe. In order to do this, I had to learn how to use pneumatic cylinders and valves, how to program and wire Programmable Logic Controllers (PLCs), and to construct a rig to hold everything. I chose to counteract the perceived elegance of the deliberate string instrument with a Soviet-style design, including an imposing rebar skeleton and bare-bones exposed wiring and pneumatic tubes. The final product is a robot that can draw the bow across the violin, tilt the violin to expose different strings, and press frets. The PLC is programmed to do a series of preprogrammed movements and allows for complete user control of all of the cylinders. I have plans to expand the project by adding a cylinder to allow the fret cylinders to move up and down the neck, and perhaps even figure out enough about how to play the violin to make it play something resembling actual music.

#292 3:30
Micro Particle Image Velocimetry (µPIV) Measurement of DNA Movement in an Electronically Active Microarray

Inna Bergal, Bioengineering (M)
Karen May-Newman, Mechanical Engineering

DNA analysis such as gene expression and infectious and genetic disease and cancer diagnostics is a growing field in microtechnology industry. DNA microarray chip is an effective and fast way of detecting the presence of these pathogens in a human liquid sample. The chip is composed of a 10x10 array of electrodes connected by wire traces to a voltage source. Electric fields induced among the electrodes propel the histidine-suspended DNA
to quickly migrate and form large concentrations around the electrodes. The target DNA probes specific to a certain pathogen are anchored to each electrode. If the DNA binds to the target DNA sequence, the pathogen is present and is detected by fluorescent scanning methods. The purpose of this study is to establish a method for measuring the velocity flow fields of DNA-representative microspheres within the electric fields to characterize the system performance. This will be accomplished by miniaturizing a particle image velocimetry (PIV) technique to the microfluidics technology. The PIV system will trace the movement of the microspheres and measure the distance traveled in a given amount of time. The flow of the microspheres has already been imaged and modeled using both experimental and software methods. The new µPIV technique will determine true experimental values. This information will enable future research to compare various designs of the microarray to determine the most optimal device.

#293 3:45

**Investigation of Long-term Viability and Stability of DNA Wires in Carbon Electrode based Bio-Nanoelectronics**

Neha Chowdhry, Bioengineering (M)

Sam Kassegne, Mechanical Engineering

DNA-conjugated nanoparticles, based on the core principle of self-organization aided by electrokinetic means, carry huge potential in enhancing technological advancement in the field of bio-nano-electronics. Our research work introduces an avant-garde bio-nanoelectronics architecture, consisting of DNA molecular wires and interconnects attached to carbon microelectrodes. In this approach, DNA serves as the template for metal deposition, while the specific molecular recognition of base sequences addresses the electronic components. Further, the long-term viability and stability of this organic framework is examined by implementing variations in parameters like pH, temperature, salinity, and ionic concentrations around the DNA/electrode attachment interface area. These variations are expected during the self-assembly process of manufacturing DNA wires, and also help to determine the optimum conditions that favor DNA attachments. The key objective is to vary these environmental conditions in real-time, and to do so over an extended time duration in order to mimic real life conditions in fabrication as well as operational environments. This bio-nanoelectronics architecture is therefore instrumental in exploring the steadiness and validity of nucleic acid molecules as nanoelectronic components in a largely organic platform.

#294 4:00

**Novel 3-D All-Polymer High Collection Efficiency Pathogen Detection Biochip**

Namratha Tata, Mechanical Engineering (M)

Samuel Kassegne, Mechanical Engineering

Isolation and concentration of pathogen or sub micron particle using lab-on-a-chip is an emerging field covering wide range of applications critical to any biological and clinical research. Biochip with 3-D Carbon electrodes have been fabricated using C-MEMS technology and its efficiency is demonstrated by image analysis techniques. Tests are carried out experimentally by manipulating polystyrene beads in a high-efficiency, high-volume biochip using closed-cell electrophoresis. This electrophoresis process is captured with a CCD camera and 2-D Image Processing is carried out using Matlab. Individual Regions of Interest (ROI) were created on biochip and examined using the multi location capability of Matlab. This allowed the description of beads [1] Dynamic distribution [2] Movement from one electrode to another electrode when biased [3] Accumulation (before and after biasing) and [4] Repulsion (before and after biasing). Algorithms are developed to measure the performance of biochip for comparing the efficiencies of various ROIs in and around positively and negatively charged electrodes. As the carbon electrodes are 3 dimensional in structure, accumulation of beads along the height (z-axis) of the electrode is expected. Scanning Electron Microscopy and Digital Microscopic techniques are used to perform 3-D image analysis and profiling of electrode with beads to establish the efficiency of the biochip. 3-D image analysis is undertaken to demonstrate the ability of the electrode to accumulate beads along its walls and to quantify them.

#295 4:15

**Numerical Modeling of DNA Hybridization in Electronically Active Microarrays with Partial Match and Mismatch Kinetics**

Neeraj Yadav, Mechanical (M)

Samuel Kassegne, Mechanical Engineering

This study investigates, through numerical modeling, the kinetics of DNA hybridization in electronically active microarrays within a limited pH range. In particular, the reaction kinetics governing hybridizations corresponding to exact and partial matches as well as mismatches are investigated. The numerical model framework developed in this study consists of a number of physics phenomena (conservation and mass transport of species) and chemical equilibrium reactions (hydrolysis of water, heterogeneous DNA hybridization, and protonation of histidine) that govern the hybridization of single-stranded DNA molecules (ssDNA) in active microarrays within an environment of continuous generation of H⁺ ions and their subsequent consumption by histidine.

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**STUDENT RESEARCH SYMPOSIUM 2010**
Prospective Memory in Individuals with Parkinson’s Disease

Genevive Brusati, Psychology (U)
Paul Gilbert, Psychology

Prospective memory is an aspect of episodic memory that refers to the ability to remember to execute an intended action at some designated point in the future, or “remembering to remember”, and is thought to be important for everyday functioning. Research suggests that prospective memory is dependent on the integrity of the frontal lobes. Parkinson’s Disease (PD) disrupts frontal subcortical circuits; therefore, prospective memory may be sensitive to neuropathological changes in PD. Prospective memory tasks are commonly differentiated based on the type of cue that represents the appropriate moment for retrieval of an intended action. In event-based prospective memory, a specific cue in the environment triggers the retrieval of a previously formed intention (e.g., seeing grocery store cues reminds one to buy dinner on the way home from work). In time-based prospective memory, retrieval of an intention is cued by a specific time or time interval (e.g., remembering to take medication at 2pm or every 4 hours). Studies suggest that time-based tasks place greater demands on executive processes dependent on frontal lobe function. Therefore, time-based may be more impaired than event-based prospective memory in PD. In the current study, nondemented PD patients and a group of normal controls were administered The Memory for Intentions Screening Test (MIST). The MIST is a well-validated, standardized test that consists of eight different prospective memory trials assigned over a 30-minute period. The test includes four event-based trials (e.g., “When I show you a red pen, sign your name on your paper”) and four time-based (e.g., “In 15 minutes, tell me it is time to take a break”) trials. During the 30-minute period in which the trials are assigned, participants are engaged in word search puzzles that serve as ongoing distractor tasks. Results revealed that PD patients were more impaired on time-based trials than event-based trials. These findings suggest that time-based prospective memory is particularly impaired in PD. This may have implications for everyday tasks that require prospective memory involving time-based cues.

Influence of Coriolis Force on DNA Molecule Migration and Hybridization in Compact Disk (CD) Microfluidics Platforms

Nithesh Paramesh, Mechanical Engineering (M)
Sam Kassegne, Mechanical Engineering

This study investigates the influence of Coriolis force on transport and hybridization of DNA molecules in CD microfluidics platforms where centrifugal force is used as the driving force. While the effect of Coriolis force on fluid flow in CD microfluidics channels has been studied experimentally and numerically only recently, its influence on DNA molecule migration and hybridization has not been investigated so far. This study addresses this phenomenon through numerical simulation and demonstrates that for most practical geometrical configurations and angular velocity ranges reported in the literature, the Coriolis force introduces significant qualitative and quantitative variations in the hybridization of DNA molecules, particularly at locations near the periphery. To validate the numerical approach developed here, we carried out several experiments on microfluidics channels in a CD platform using polystyrene microbeads. Both numerically and experimentally, Coriolis effect is observed to be significantly influenced by channel width and angular rotations. Our results indicate that for low viscosity fluids, angular velocities as low as 25 rad/sec could introduce Coriolis force that is at least 25% of the main driving centrifugal force.

Visual-Motor Deficits in Children with Histories of Heavy Prenatal Alcohol Exposure are Not Accounted for by More Basic Skills

Jillian Carrillo, Psychology (U)
Sarah Mattson, Psychology

OBJECTIVE: Although children with histories of heavy prenatal alcohol exposure demonstrate visual-spatial and fine-motor deficits, the relationship between these component processes and higher-order visual-spatial functioning has not been evaluated.

PARTICIPANTS AND METHODS: The present study assessed performance on the Beery-Buktenica Visual-Motor Integration (VMI) test and its two supplemental forms: visual perception (VMIVisual) and motor coordination (VMImotor). Subjects were children, ages 7-15, with heavy prenatal alcohol exposure (ALC, n=26) and non-exposed typically developing controls (CON, n=25).

RESULTS: Data were analyzed using ANOVA, revealing significant between-group differences on the VMI (F(1,49)=7.504, p=.009) and the VMImotor (F(1,49)=4.767, p=.034) tests but not on the VMIVisual (F(1,49)=2.057, p=.158) test. Next, a two-step
Behavior in Children with Early Focal Brain Damage

Monica Lopez, Psychology (U)
Amy Spilkin, UCSD Department of Neurosciences and the Department of Psychology at SDSU

Children with early brain damage are at risk for cognitive and behavioral problems because the damage occurs early in life when crucial functions are just developing. The purpose of the current study was to examine behavioral profiles in children with early focal brain damage and typical controls. We hypothesized that as children with focal brain damage get older, behavioral problems may surface. The Child Behavior Checklist (CBCL) is well validated for analysis of behavioral problems in children. The CBCL provides T-scores with a cutoff for the clinically significant range for abnormal behaviors. We compared CBCL T-scores of 98 children with focal brain damage (FL) from perinatal stroke, and 390 controls. Mean T-scores were no different for any behavioral indices between FL and control groups. However, a significantly higher percentage of FL children had abnormal T-scores than did controls. There were no significant differences based on age, side of lesion, or frontal lobe involvement. This study contributed to our understanding of neural plasticity in that there were no behavioral differences related to side or site of lesion. Children with early FL are at higher risk for behavioral problems, however, indicating that there are limits to plasticity in the developing brain.

Differences in Sensory Perception Assessment between Adolescents with ASD and their Caregivers

Francisco Velasquez, Psychology (U)
Ralph-Axel Müller, Psychology

Atypical responses to sensory stimuli are frequently seen in children with autism spectrum disorders (ASD), implying that sensory information may be processed abnormally. Such atypical responses can be detected using the Sensory Profile, an instrument often used in ASD and ADHD to measure sensory perception aptitude. Our objective was to test for differences between sensory perception assessment by caregivers and self-assessment by participants with ASD. Previous ASD studies have shown inconsistencies between self and parent assessments. We therefore hypothesized that Sensory Profile responses would show discrepancies based on assessment source. Ten adolescents with ASD (Mean age=13.7, SD=2.8; non-verbal IQ =108.2, SD=17) and their caregivers completed the Sensory Profile. There are two versions of this instrument: (i) an assessment completed by caregivers of individuals with these disorders (Dunn’s Sensory Profile); and (ii) the Adolescent/Adult Sensory Profile created for self-assessment and composed of an entirely different set of questions than the ones used in the caregiver version. Responses to both versions of the Sensory Profile can be interpreted uniformly by being broken down into quadrants. Each quadrant is composed of a sensory processing pattern: registration, avoiding, sensitivity and seeking. Raw scores were converted to z-scores using published standardized scores from the Sensory Profile manuals. We used a one-way analysis of variance (ANOVA) to compare z-scores for each quadrant from both instruments. Three out of four quadrants yielded significant results. The caregiver group endorsed significantly more sensory symptoms in the sensation seeking quadrant, F(1,18)=7.31, p=.015, the sensory sensitivity, F(1,18)=8.06, p=.011, and the sensation avoiding quadrant, F(1,18)=7.70, p=.013, while the low registration quadrant produced marginally significant results F(1,18)=3.70, p=.07. This study indicates that caregivers tend to report more sensory symptoms for their children than individuals with ASD attribute to themselves. Inconsistencies between caregiver assessment and self-assessment will need to be taken into account when applying results from the Sensory Profile in behavioral or neuropsychological research. Our study could not determine whether these inconsistencies are due to overreporting of sensory symptoms by caregivers or underreporting by ASD participants. Caution is required given the as yet small sample size of our study.
#301 3:00–4:30

The Role of an Odor Identification Task in Discriminating Depression from Probable Alzheimer’s Disease in Older Adults

Emily Bower, Psychology (M)
Claire Murphy, Psychology

Research suggests that odor identification tests may be a useful diagnostic tool for differentiating between depression and probable Alzheimer’s Disease (AD) in older adults. Specifically, odor identification is often impaired in AD populations but relatively unimpaired in patients with depression. The objective of the present analysis was to determine the extent that group membership (i.e. depression or AD) could be predicted using the Mini-Mental State Examination (MMSE), Dementia Rating Scale (DRS), and the San Diego Odor Identification Test (SDOIT). A direct discriminant function analysis was performed for 93 individuals, 68 AD patients and 25 patients with depression, all aged 55 and older. One discriminant function was statistically significant, $\chi^2(3)=74.815$, $p<.001$, $\eta^2=0.567$, and maximally differentiated patients with AD (M=-0.686) from patients with depression (M=1.865). Although the structure coefficients showed that all predictors correlated highly with the discriminant function (DRS=0.900, MMSE=0.752, SDOIT=0.541), based on the standardized discriminant function coefficients, the MMSE (=0.257) was not a good, unique predictor of group membership while the SDOIT (=0.399) and DRS (=0.657) contributed most to differentiating between depression and AD. Overall, 90.3% of the patients (100% depressed, 86.8% AD) were correctly classified using the discriminant function, which exceeds the 60.7% (26.9% depressed, 73.1% PRAD) that would be classified correctly by chance. These findings suggest that the SDOIT, when used in conjunction with the DRS, may be an effective diagnostic tool for differentiating between depression and AD in clinical settings.

#302 3:00–4:30

Age-Related Changes in Spatial Pattern Separation

Heather Holden, Psychology (M)
Paul Gilbert, Psychology

Pattern separation is a hippocampal-dependent mnemonic process that may be critical to the accurate encoding, and subsequent retrieval, of episodic memories. Pattern separation is a process in which patterns of partially overlapping neural activation are separated into discrete representations. This process is fundamental to reducing interference that can occur when different memory representations have similar elements. Computational models suggest that the mechanism of pattern separation is facilitated by sparse mossy fiber connections from the dentate gyrus to the CA3 subfield of the hippocampus. Support for this hypothesis has been reported in findings from behavioral and electrophysiological studies in animals, studies of humans with hippocampal damage, and fMRI studies of healthy individuals. Studies examining region-specific age-related changes in the hippocampus have reported that both the dentate gyrus and CA3 subregion are adversely affected by aging. The current study examined the ability of young adults and non-demented older adults to perform a task that required spatial pattern separation. Each trial consisted of a sample phase followed by a choice phase. During the sample phase, a gray circle appeared on a computer screen for five seconds. The participant was instructed to try to remember the location of the circle on the screen. During the choice phase, one red circle and one blue circle were displayed on the screen simultaneously and the participant was asked to indicate which of the two colored circles was in the same location as the gray circle from the sample phase. The target and foil circles on the choice phase trials were separated by one of four possible spatial separation lags: 0 cm, 0.5 cm, 1.0 cm, and 1.5 cm. As the spatial separation lag decreased, interference between spatial memory representations was likely to increase, thus requiring the operation of a pattern separation mechanism to orthogonalize spatial input and create distinct representations. As hypothesized, performance across groups improved significantly as the spatial separation lag increased. In addition, young adults outperformed older adults overall. These results suggest that age-related degeneration in the hippocampus may result in decreased efficiency of hippocampal-dependent mnemonic processes such as pattern separation.

#303 3:00–4:30

Olfactory Assessment and Cultural Diversity: Implication for Assessment of AD

Yurika Enobi, Psychology (M)
Claire Murphy, Psychology

With demographic increases in the aging population, diseases of aging are also increasing, and in particularly Alzheimer’s disease (AD). Although diagnostic criteria for Alzheimer’s disease have been developed, early diagnosis of Alzheimer’s disease is imperfect. Culture is a critical variable that may influence the accuracy of diagnosis of AD. Although neurocognitive tests are commonly used to detect decline in cognitive functioning, the use of such tests in the assessment of minority individuals has been questioned. The aim of this study is to examine the performance of two groups on neuropsychological and cognitive tests: Caucasians and Japanese Americans. This present study compared the performance of 75 Japanese Americans and 106 Caucasians who ranged in age between 45 and 91 ($M=64.15$, $SD=10.89$). The criteria for all participants were 1) chronological age of 45 years or older and 2) no positive neurological history, such as head injury, stroke, or tumor, 3) identifying themselves either...
as Caucasian or Japanese American. The Boston Naming Test-2 (BNT-2) and San Diego Odor ID Test (SDIDT) were used to compare the performance of these two groups. The BNT-2 is designed to measure object-naming deficits and is also widely used in assessment of dementia. The San Diego Odor Identification Test (SDOIT) was also used to compare the performance of Japanese Americans and Caucasians. The SDOIT is an olfactory identification test that includes eight common household odors (e.g., coffee, chocolate, and peanut butter). A subject who is unfamiliar with some odors may show impairment due to naming rather than odor detection. We hypothesized that Japanese Americans in this study will be more likely to score lower on both tests than Caucasians. Results indicated that performance differences between Japanese Americans and Caucasians were demonstrated on the BNT. No difference in performance between Japanese Americans and Caucasians on the SDOIT was found in this study. Thus, the SDOIT may be an effective tool for assessment of olfactory impairment, even in Japanese Americans. It may contribute to effective AD assessment batteries even in minority populations such as Japanese Americans.

#304 3:00–4:30
Redefining Compliance with Medical Recommendations for Students with High Cholesterol and Hypertension: The Relevance of Nutritional Habits and Exercise

Luz Garcini, Clinical Psychology (D)
Elizabeth Klonoff, Clinical Psychology

The American diet is characterized as high in fat, cholesterol, calories, and salt which, has had implications for the etiology of chronic illnesses such as, heart disease, stroke and cancer (Hollos, et al., 1986). To promote improved health, particularly among patients with high cholesterol and hypertension, the National Institutes of Health (2009) have recommended enhanced nutritional habits and increased physical activity. The present study investigated differences in the nutritional habits and physical activity levels of students with high cholesterol and hypertension (N=99) who differed in perceived compliance with medical recommendations to dieting. Specifically, this study hypothesized differences would be found in relevant nutritional habits (i.e., buy low sodium foods, read ingredient lists, and read nutritional labels) and exercise as a current strategy to weight loss between compliant and non-compliant students. Results using descriptive statistics showed 52% of students reported complying with medical recommendations to dieting, and 21.4% to be trying to lose weight. No significant age, gender, or ethnic differences were found between the groups, and the mean age was 19 years (SD = 3.6). Of the total sample, 11% of students had been prescribed medication for cholesterol or blood pressure, and no significant differences were found in prescribed medications across the groups. One way between-groups MANOVA showed no significant differences were found in the nutritional habits of students reporting compliance versus those reporting non-compliance. An evaluation of mean differences showed both groups to “rarely” or “sometimes” buy low sodium foods, read ingredients lists, and read nutritional labels. In terms of physical activity, results from Chi squares showed significant differences were found in exercising as a current strategy to weight loss between the groups ($\chi^2 (1, n = 97) = 9.38$, p = .002, $\phi = .311$. More specifically, 86.3% of students reporting compliance were exercising to lose weight versus 59% of students reporting non-compliance. The aforementioned results suggest that although increased physical activity may be a behavior associated with reported compliance to medical recommendations among students with high cholesterol and hypertension, relevant changes in nutritional habits remain questionable. Discussion will consider findings in terms of the need for interventions to help redefine, promote and improve compliance with medical recommendations to healthy dieting among students with high cholesterol and hypertension, limitations of the study, and directions for future research.

#305 3:00–4:30
Neuroanatomical Correlates: Psychophysical Evaluation of Different Taste Qualities During Hunger and Satiety

Lori Haase, Clinical Psychology (D)
Claire Murphy, Psychology

The physiological states of hunger and satiety moderate brain activation in response to taste and flavor stimuli. We have shown that the psychophysical evaluation of taste stimuli influences the pattern of cortical activation. That is, different brain areas are involved in the evaluation of pleasantness (PL) relative to the evaluation of intensity (INT). fMRI was utilized to examine the patterns of cortical activation involved in psychological evaluation of PL and INT during hunger and satiety in response to 2 taste stimuli (sucrose, caffeine). During scanning, subjects were administered taste stimuli and were asked to evaluate the perceived PL or INT using the general Labeled Magnitude Scale. Image analysis was conducted using AFNI. A multiple linear regression was conducted to examine the potential relationships between perceived PL and INT of the taste stimuli and cortical activation. We have observed that during the PL evaluation, there are robust correlations between perceived PL and activation within the OFC. There was a positive correlation between PL and OFC activation for sucrose when hungry and negative correlation when sated; this effect is less robust for caffeine and relationships were positive across physiological conditions. In contrast, INT evaluation was associated with activation within the insula. Here we show that this relationship varies as a function of stimulus and physiological

ABSTRACTS
condition. There was a positive correlation between perceived INT and insula activation for sucrose when sated and for caffeine when hungry. These findings shed light on the impact of qualitative features on brain activation during psychophysical evaluation and may contribute to understanding the neural mechanisms of eating termination and over consumption. Supported by NIH grants AG04085-23 to C.M.

#306 3:00–4:30
Further Validation of the Pleasant Events (PE) and Activity Restriction (AR) PEAR Model of Negative Outcomes in Alzheimer Caregivers: Associations with Markers of Sympathetic Tone

Elizabeth Chattillion, Clinical Psychology (D)
Brent Mausbach, UCSD Dept. of Psychiatry

Purpose: Caring for a spouse with dementia is a stressor associated with depressive symptoms, increased risk for hypertension and CVD. Caregiving has been associated with reduced engagement in pleasant activities and increased perceived restriction of leisure activities, which research suggests may play a role in depression. The present study used the PEAR model to examine the relationship between combined pleasant events (PE) and activity restriction (AR) and markers of sympathetic tone in Alzheimer caregivers (CG). We hypothesized that CG reporting both low PE and high AR would have elevated blood pressure (BP) and catecholamine levels compared to CG reporting high PE and low AR. Methods: 37 older adults (mean age 73 ± 9.4 yrs) caring for a spouse with Alzheimer’s disease participated. Frequency of engagement in PE and perceived level of AR in the past month were assessed. Participants were divided into 3 groups: HPLR = High PE + Low AR (N=15); HPHR/LPLR = Either High PE + High AR or Low PE + Low AR (N=13); LPHR = Low PE + High AR (N=9). Resting levels of plasma norepinephrine (NE) and epinephrine (EPI) and resting systolic and diastolic BP were collected. Results & Conclusions: ANOVA comparisons of the 3 groups (HPLR; HPHR/LPLR; LPHR) were significant for EPI, F(2,36) = 4.98, p = .013, but not for NE, F(2,36) = .904, p = .415, systolic BP, F(2,36) = 2.88, p = .070, or diastolic BP, F(2,36) = 2.61, p = .089. However, pairwise comparisons between the HPLR and LPHR groups revealed moderate to large effect sizes (Cohen’s d) for all biological outcomes. Compared to the HPLR group, CG in the LPHR group had higher resting EPI, d = 1.20, and NE, d = .52, and higher systolic BP, d = .98, and diastolic BP, d = .92. These preliminary results support the PEAR model which shows that combined assessment of PE and AR is best for predicting negative CG outcomes. The current analyses extend these findings to biological outcomes. Future research should examine how the PEAR model can be used to link psychological and physical outcomes.

Session C-2
Poster: Biotechnology
Friday, March 5, 2010, 3:00 – 5:30 pm
Location: Montezuma Hall South

#307 3:30–5:00
Detection of HIV-1 Sequences in the Human Genome
Matthew Hagen, Biology (U)
Roland Wolkowicz, Biology

The retroviral life cycle involves the relatively random integration of a DNA copy of the virus genome into host cell DNA. Once integrated, retroviruses remain in the genomes of their hosts; there are no known viral mechanisms for their excision. Over evolutionary time scales, the retroviral genomes may disappear or change by deletions and mutations, but their footprints may remain, allowing for their detection and the analysis of their co-evolutionary history. The DNA sequence of HIV-1 was compared with the human genome to detect possible remains of past integration events. Through DNA homology analysis, identical matches were found in all of the human chromosomes, with lengths that are both longer than predicted and more recurring than otherwise would have occurred by chance. Interestingly, in some cases, the occurrences are clustered. The distribution of these matches is being analyzed to detect which viral genes have “survived”, and whether there is a preference for cis elements or gene products. In the case of gene products, we are investigating which genes have been deleted and which maintained. A tool for the visualization of the matches between the viral genome and the human genome has also been developed. In light of the high mutation rate of retroviruses, the analysis is being repeated with other HIV-1 sequences in order to increase the biological relevance of our findings.
Investigating the Structural Dynamics Implication of Flexible Resilin Joints on Dragonfly Wings

Joseph Marrocco, Biology-Bioengineering (U)
Dr. Luciano Demasi, Aerospace Engineering

The practical application of relatively small, light weight micro air vehicles by biomimicry is of great interest to the engineering community. The goal of this research project is to improve the understanding of the structural construction of insect wings. A dragonfly insect has been chosen, as it has a very revealing structure and is an insect that has unique flight capabilities. Dragonfly wings are able to withstand the forces imposed upon them by the surrounding air, inertial forces caused by acceleration and decelerating their own weight. The basic design of a dragonfly wing is a pleated membrane stiffened by tubes at the apexes of the pleats, forming a particularly rigid and strong structure. This tubular pleated membrane provides a stiff structure along the length (spanwise direction) of the wing and a flexible structure along the width (chordwise direction) of the wing. The tailoring flexibility in the wing is essential as it can play significant role in the aerodynamics wing airfoil shape it can achieve, in addition to the benefits of gust alleviations, and damage tolerance. The investigation into the material composition and architecture on the dragon fly wings revealed that while a large part of the wing structure is made of chitin protein, there is a regular pattern of joints on the wing made of less stiffer resilin protein. The focus of this effort is to understand the effect and implications of the resilin joints on the structural dynamics of the wing. To achieve this goal a finite element structural analysis tool has been used and a detailed model of the dragonfly wing was created. Main focus of the present analysis is to understand how the presence of flexible resin joints affects the natural vibration and mode shapes of the dragonfly wing.

Identifying, Isolating and Replicating Enzymes for Use in Biofuel Production

Samuel Ollar, Biology (U)
John Love, Chemistry

The purpose of this project is to identify species of zooplankton as potential sources of cellulolytic and phospholytic enzymes for use in biofuel technology. The current states of global warming and fossil fuel depletion present a significant need for research in renewable, carbon neutral energy sources. Microalgae use carbon dioxide from the atmosphere as their primary source of carbon and are thus considered, a carbon neutral, renewable source of energy. Certain strains of microalgae such as Nanochloropsis oculata can store as much as 60% of its energy, by mass, in lipids. These lipids are stored as triglycerides in vacuoles and as phospholipids in membranes. Currently, one of the most cost prohibitive steps in processing microalgae is lysing the algal cells, and gaining access to the lipids inside. Enzymes and enzyme systems that lyse algal cell membranes and cell walls can be found in the digestive tracts of organisms such as rotifers, which consume microalgae as a food source (Strojsova, et al., 2007). Mature messenger RNA (mRNA) templates that code for these enzymes can be isolated from organisms, transcribed into complimentary DNA (cDNA), inserted into E.coli, and screened for identification. Once the enzymes of interest are isolated, identified, and reengineered they can be synthesized and purified or possibly inserted into the algal genome behind a promoter sight that is specifically controlled by a substance which is not naturally found in the algae or its environment, such as methanol.

Engineering a Novel Protein Expression System Based on Vesicular Stomatitis Virus

Jimmy Guo, Cell Molecular Biology (M)
Jacques Perrault, Biology

The VSV-T7 protein expression system developed in the Perrault lab (patents pending) is based on a recombinant vesicular stomatitis virus encoding the bacteriophage T7 RNA polymerase. Proteins of interest are efficiently translated from T7 transcripts transcribed from plasmids transfected into VSV-T7-infected cells. The results presented here show that 1) the VSV-T7 system expresses the GFP reporter protein efficiently in many mammalian cells commonly used for protein production in the biopharmaceutical industry; 2) reducing virus-mediated host cell shut off by introducing a mutation in the VSV-T7 matrix protein (M51 deletion) lowers rather than increases reporter gene expression; 3) protein expression is not limited by the amounts T7 polymerase produced and 4) co-expression of the vaccinia double-stranded RNA-binding protein E3L boosts protein expression substantially in at least some cell types. These findings further attests to the utility of this protein expression system for bio-industry and reveal unanticipated aspects of virus-host relationships including the role of dsRNA in modulating T7 transcript translation.

A Simplified rRNA in situ Detection of Microorganisms using Fluorescence and Electron Microscopy

Donn Van Deren, Jr., Cell Molecular Biology (M)
Rick Bizzoco, Biology

There has been a long-standing controversy about the origin of microbes in flowing spring sediments. An old but well supported theory is the Ubiquitous Dispersal model in which microbial species are likely to be found in any habitat and the environment is
the limiting factor. Thus, subsurface streams may carry microbes to the surface and structure the growth and format of microbial communities. Therefore, the development of a successful and efficient method to visualize surface and subsurface environmental samples by in situ rRNA hybridizations is a particularly useful tool for the study of the origin of flowing hot stream sediments or mats. The use of sequence specific 16S rRNA probes for in situ hybridizations (ISH) is to detect, characterize, and enumerate microorganisms in environmental samples by current microscopy methods. The goal of this study is to create a simple and effective method to prepare environmental samples for microscopic analysis by using a modified eppendorf tube plus membrane filter throughout the entire hybridization assay. Detection of hybridization is observed by fluorescence probes using a fluorescence microscope or streptavidin bound nanogold-silver using an electron microscope. Our methodology has recently been developed and we are currently in the process of utilizing this approach to analyze a broad range of microorganisms from various hydrothermal sites, including bubbling pools, flowing springs, and steam vent sediments.

#312 3:30–5:00

_Sequencing the California Sea Lion Genome_

Matt Doherty, Cell & Molecular Biology (M)
Liz Dinsdale, Biology

The genetic changes that occurred with the transition of terrestrial animals back to the marine environment have not been fully explored. To elucidate these changes, the genome of the California sea lion will be sequenced using 454 pyrosequencing. To conduct this experiment, DNA will be obtained from a male California sea lion, which will ensure that the Y chromosome is also described. The DNA will be sequenced to approximately 4x coverage, enabling reconstruction of about 80% of the genome. The genome will be assembled using nubler assembler and characteristics compared using various bioinformatic techniques. Genes comparison will be conducted across members of the carnivore group to describe the genomic differences within this group. I will also examine genomic synteny, SNP rates, and look for possible viral insertions in the genes. On a molecular level the details of the genetic structure, such as the rate of repeats within the genome will be described. Comparisons to other genomes will be conducted using BLAST (Basic Local Alignment Search Tool) to look for common genes shared by the sea lion and other carnivores in an effort to determine where in the evolutionary tree the sea lion fits.

#313 3:30–5:00

_Immune System on a Chip: Fusing Stem Cells and Microfluidics_

Trevor Gale, Microbiology (M)
Kelly Doran, Biology

Despite the tremendous strides that have been made in the study of stem cell biology, an in vitro testing system that can mimic the varied environments experienced by stem cells in vivo has not yet been fully realized. The importance of such a system can be seen in numerous applications, ranging from the ability to perform differentiation/dedifferentiation screens, to efficacy testing of proposed stem cell therapies in the context of the complex milieu of molecules secreted by neighboring cells. However, the inherent complexity of the in vivo environment makes the generation of an accurate in vitro system difficult. A preferable approach would be one that simplifies the complexity of a whole animal model into more a manageable system of inputs and outputs. We will take a multidisciplinary approach to this problem by combining aspects of microfluidics, biochemistry, and cell biology and bioinformatics to develop controlled systems that can simulate complex in vivo environments. We are currently designing and constructing devices that allow cells to be exposed to specific environments (e.g., varying cell types as well as extracellular matrix components) and then assayed for phenotypes of interest including morphology, transcriptional activation, and differentiation. At a first approximation, these devices can be thought of in a simple sense as a two-chambered flow device, with the upstream chamber containing cells representing the local environment and the downstream chamber containing the stem cells; however, our goal is to fabricate devices that have multiple “input” compartments surrounding the stem cell to allow for numerous cell types to be utilized simultaneously or alternately. This allows the local environment experienced by the stem cells to be altered by activating isolation valves or by adjusting flow rates from each input chamber.

#314 3:30–5:00

_Mitral Valve Regurgitation in Patients Implanted with a Left Ventricular Assist Device (LVAD)_

Bradford Fisher, Bioengineering (M)
Karen May-Newman, Engineering

Left Ventricular Assist Devices (LVADs) are a successful treatment for left heart failure. In the past, pulsatile designs have been used as a bridge to transplant, but recently newer continuous flow rotary designs have been approved for destination therapy.
The continuous flow designs are very successful but they do not accurately mimic the function of the heart and this can lead to aortic valve disease. In the future some surgeons plan on closing off the aorta to prevent aortic valve disease, but it is unknown how this will affect the hemodynamics of LVAD patients. One common concern amongst surgeons is that these devices drop the pressure in the left ventricle sufficiently to cause mitral valve regurgitation. The goal of this study is to evaluate the hemodynamic conditions that may produce mitral valve regurgitation in LVAD patients. Mitral valve function was investigated with the SDSU cardiac simulator. For this study the simulator was outfitted with porcine bioprosthetic heart valves, a HeartMate II LVAD, and a proximally clamped aorta. This setup allowed the simulator to function analogous to an LVAD patient with a closed aortic valve. Mitral valve function underwent image analysis to determine if regurgitation was taking place and to what degree. Preliminary tests with two levels of simulated cardiac function (72 bpm with stroke volume 32mL and 40mL) and five LVAD speeds (7, 8, 9, 10, and 11 krpm) did not result in any mitral regurgitation. Further studies must be conducted before mitral valve regurgitation can be confidently ruled out for LVAD patients.

**#315 3:30–5:00**

**Analysis of Mechanical Properties of Pulmonary Valve Leaflets**

Soni Mikkilineni, Bioengineering (M)
Dr. Karen May-Newman, Engineering

Some people are born with a heart defect that requires replacement of the aortic valve during their childhood (preferably 15 years or less age). A surgery called the Ross procedure has been developed in which the patient’s aortic valve is replaced by his/her own pulmonary valve. The pulmonary valve is replaced by a cadaver valve. Despite the good success rate (80%), the procedure is not always successful because of the difference in the material properties of the pulmonary and the aortic valves. The aortic valve is much thicker due to high collagen content and is exposed to a pressure of 80 mm Hg whereas the pressure on the pulmonary valve is only 10 mm Hg. The native pulmonary valve must adapt its structure to function properly with the higher load in the aortic site. This process of adaptation of the pulmonary valve in the aortic site is not well understood. The aim of this study is to characterize the differences between the aortic and pulmonary valve leaflets using a mathematical model. Experimental data collected from the previous biaxial testing experiments conducted in our laboratory were analyzed and the extensibility, pre- and post-transitional stiffness (E pre and E post) tabulated for four porcine pulmonary leaflets along both circumferential (C) and radial (R) directions. Extensibility was equal in the radial and circumferential directions at approximately 25% stretch. The average E pre in circumferential direction was found to be 32.61 kPa and in the radial direction was found to be 8.1 kPa. The average E post value was 2915.9 kPa in the circumferential direction and 646.8 kPa in radial direction. These values will be compared with data from aortic valve leaflets, and a constitutive law formulation developed for pulmonary valve leaflets that can be used in computational models.

**#316 3:30–5:00**

**Development of a Viscoelastic Model for Finite Element Simulations of Cyclically Loaded Human Bone**

Richard Oka, Applied Mechanics/Biomechanics (D)
Thomas Impelluso, College of Engineering

Orthopedic surgeons and implant designers are interested in a computational tool that simulates bone damage under cyclic loading caused by walking and other daily activities. For example, it is well known that bone damage progresses near the bone-implant interface. What is missing now is 1) a 3D constitutive model for cyclically loaded bone and 2) a finite element code that could be used for detecting localized damage accumulation.
methamphetamine, and cocaine. They are also more likely to have family criminal history. Women were twice as likely to report trauma than men. Of the total sample, 33 percent reported trauma-related psychological problems, with women significantly more likely to report them. In regards to drug use, women who reported trauma-related psychological problems were more likely than men to abuse alcohol or methamphetamine. However, in regards to recidivism, reported trauma history and trauma-related psychological problems had no significant relationship by gender. Rates and effects of trauma between men and women were found to be different in this study. While there are many challenges that face parolees upon release, trauma-related psychological problems are significant and should be addressed both at the prison level and in post-prison case management. Although this study found no link between trauma-related problems and recidivism, other studies have found that trauma victims are more susceptible to be re-victimized or becoming a perpetrator. Under-reporting of trauma, which may have occurred in this study, may be due to its stigma in the community and in prison. Helping parolees address trauma, which may have occurred in this study, may be due to its stigma in the community and in prison. Helping parolees address trauma and its effects may decrease recidivism.

#318 4:00–5:30
Accessibility and Utilization at an Elementary School Based Health Clinic
Jayne Vermeulen, Nursing (U)
Linda Robinson, Nursing

Background: The school-based clinic at Rosa Parks Elementary is significantly funded by a private philanthropic foundation, serving the community for ten years. This clinic has never been evaluated from the parents’ perspective, posing a problem, as it is important to consider whether the clinic has been meeting the needs of parents. Goal and Objectives: The aim of this project is to gather qualitative data from parents of Rosa Parks Elementary students and key informants of the community regarding their satisfaction with the clinic. By the end of the focus group sessions, students will 1) recruit a culturally diverse sample of parent participants 2) engage forty parents in an open-ended discussion regarding their use of the clinic Methods: Four focus groups, including forty parents, and eight semi-structured interviews with key informants were held. Responses from the focus groups and interviews were reviewed for themes. Results: Forty parents participated and six themes emerged. Dissatisfaction with clinic continuity with staff members, preference of a physician rather than a nurse practitioner, and denial of care for children because they are not patients of the Pediatric Nurse Practitioner were expressed. Parents applauded the clinic for being efficient in comparison to other clinics they had received care. Parents felt Rosa Parks Elementary nurses were welcoming and service and treatments are successful. Conclusion: The goal was reached as extensive qualitative data on the parents’ views on the clinic’s accessibility, services, and performance was obtained. Based on the study results, it appears parents are generally uneducated on the eligibility of the clinic. Future efforts should include parental education on the services offered by the clinic as well as eligibility for becoming an identified patient.

#319 4:00–5:30
End of Life Communication among Mexican Americans and Korean Americans
Alejandra Lopez, Social Work (M)
Eungeong Ko, School of Social Work

Background: End-of-life care planning is vital for older adults as death may be the imminent issue for this group. Having one’s life sustaining treatment preferences known to family or health care professionals is important in honoring individuals’ wishes. Despite its heightened needs, communicating about death and dying is not well received in certain cultures. Mexican and Korean Americans are rapidly growing subgroups of Hispanic and Asian populations, respectively, yet little is known about end-of-life planning in these groups. This study explores effects of ethnicity and other associated factors in end-of-life communication between Mexican and Korean Americans. Methods: A non-probability, convenience sampling method was used to select the participants from senior centers and a senior housing facility in San Diego County. Eligibility criteria include Korean and Mexican Americans, age 65 and older, who were cognitively intact. The total sample size was 122 (58 Mexican Americans and 64 Korean Americans). Face-to-face interviews were conducted at a private office at the senior centers or in the participants’ homes. Translated, structured questionnaires in both Hispanic and Korean were used. Each interview lasted approximately 30 minutes. Results: Almost half (50.8%) of the participants were noted to have had discussions about life sustaining treatment preferences. More than two-thirds (67.2%) of Mexican Americans reported having end-of-life communication, but only 35.9% of Korean American had end-of-life communication. The binary logistic regression results showed that Mexican Americans were 6.5 times more likely to have end-of-life communication than Korean Americans. Participants who 1) completed an advance directive, 2) had negative attitudes toward life sustaining treatments, and 3) held positive attitudes toward discussing serious illness were more likely to engage in end-of-life communication. Conclusion: This study highlights cultural differences in end-of-life care between Mexican and Korean Americans. Communicating and planning for end of life is a complex process. Therefore, it needs to be understood within the context of one’s culture. Because the prevalence of end-of-life communication is low in this study population, it is vital that health care providers assess individuals’
experiences in end-of-life communication and identify its facilitators and barriers. Professionals and researchers need to further explore cultural beliefs and traditions influencing end-of-life communication in order to develop culturally sensitive approaches.

#320 4:00–5:30

**Mexican-Americans’ Attitudes toward Life Sustaining Treatments**

Monica Bonilla, Social Work (M)

Eunjeong Ko, School of Social Work

Background: The number of older adults is expected to double in the next century, with Hispanics making up 14% of the total population. Mexican-Americans comprise the largest ethnic subgroup of Hispanics in the United States. As life expectancy increases due largely to the advances in modern medical technology, the issue of quality end of life has been the focus of much attention. Despite the heightened importance of quality end-of-life care, there is a dearth of research on this topic with Mexican-Americans. This study examines Mexican-Americans’ 1) attitudes toward life sustaining treatments, 2) associated factors, and 3) explores the perceptions of “good” and “bad” deaths. Method: This study used a mixed method design using both qualitative and quantitative methods. A two age, non-probability sampling method was used to select the participants from two senior centers and a senior housing facility in San Diego County. In the first stage, a convenience sampling method was used. Inclusion criteria were Mexican-American ethnicity, age 65 or older, and mental status of cognitively intact. The total sample size was 58. In the second stage, 20 out of total participants were purposively selected for the qualitative interview. Interviews were conducted face-to-face. The qualitative interviews were tape recorded. Results: The participants consisted of: female (84%), unmarried (66.7%), and mean age of 75 years old with 8.7 years of education. Multiple regression analysis results showed that participants who held strong cultural values on decision making; had a higher level of depression; and males were more likely to have a positive attitude toward using life sustaining treatments. Qualitative data analysis yielded several themes regarding “good” and “bad” death. Themes for good death include 1) dying without physical suffering, and 2) having lived a long and meaningful life. Bad death was viewed as 1) physically suffering, 2) having an unexpected death, and 3) being seriously ill and prolonging one’s life. Conclusion: Individuals’ attitude toward life sustaining treatments needs to be understood within a cultural context. Health care professionals need to understand cultural implications of perspectives toward good and bad deaths, and its relation to use of life sustaining treatment. Developing and implementing a culturally sensitive approach within the health care field is critical when working with this population.

#321 4:00–5:30

**Being Wo, or What are Thou?**

Gabriela Guarguagli, Journalism & Media Studies (M)

Irene Lara, Department of Women’s Studies

I have been a feminist for as long as I remember, aware of women’s discrimination on many fronts. However, it wasn’t until I began taking Women’s Studies classes that my attention shifted to the social construction of difference and inequality, and how these constructs define, curtail, and limit women and other minorities’ potential (Ore, 2009). With so much feminist theory to digest in a short time, I would come home overwhelmed. This led me to think that there should be a way to help everyone understand feminist theory in a more fun way. That’s when the idea of a board game bearing a women and minorities theme began to take form. Educators and learning theorists suggest that play is one of the most important venues for learning, and games are useful educational tools. Games are not just a diversion to children, but an integral part of their social and cultural lives (Rieber, 1996). Through this game I wanted to show how society constructs differences and who benefits by doing so. While looking for a name for this game I wanted to convey “fun” with a name that could awake in the players’ minds, automatically, subliminally, a familiarity with the name. That’s how “BeingWo or What are Thou?” was born, for its similarity in sound with BINGO. While doing research for the name, the spell check function tried to correct “BeingWo” with “Bingo” every time. Thence, I knew name-wise I was on the right path. This research presentation will discuss my proposal for the “BeingWo or What are Thou?” board game that aims to provide high school and college students with a fun way to learn about women’s history and feminist concepts. Through this method of play, I argue, the game will potentially plant a seed that will awaken the players’ curiosity about the topic.).

#322 4:00–5:30

**A Comprehensive Literature Review of the Effectiveness of Sexual Assault Programming in Comparison to the Survivor’s and Non-survivor’s Perspective**

Holly Nelson, Social Work (M)

Thomas Packard, Social Work

It is estimated that a woman has a one in four and one in five chance of being raped during her college years (Fisher, Cullen, & Turner, 2000). Given this high prevalence rate, many college campuses have responded to the issue of sexual assault through the creation of rape prevention programs. Targeting students with educational outreach and preventive workshops, these programs have yielded short-term effectiveness in altering rape attitudes; however, there is little evidence in demonstrating long-term attitudinal or behavioral changes (Anderson & Whiston, 2005). As a
result, many college campuses continue to operate rape prevention programs despite their lack of empirical evidence. To gain a better perspective of the sexual assault research, a literature review was conducted on 30 evidence-based articles published from 2000 to the present. Based on the authors’ recommendations, a survey will be created and disseminated to the San Diego State University’s campus organization, Survivor Outreach and Support (S.O.S.). S.O.S. was founded in the fall 2009 to reduce the violence targeted against women and provide a network of support to survivors and non-survivors. The purpose of this study is to analyze whether or not the researcher’s recommendations from the literature review are congruent with the S.O.S. student’s perspectives. The researcher will report the preliminary data and its projected implication to the SDSU community as well as its greater contribution to the sexual assault literature.

#323 4:00–5:30

Sociodemographics and Motivation as Predictors of Outcomes for Screening and Brief Intervention for Alcohol and Drug Use

Kimberly Eisenberg, Social Work (M)
Susan Woodruff, Social Work

Screening, Brief Intervention, and Referral to Treatment (SBIRT) programs have been shown to be an effective public health approach to reducing alcohol and drug abuse. The California SBIRT program, CASBIRT, provides services in 12 emergency department and trauma centers throughout San Diego County. It was expected that CASBIRT would achieve levels of effectiveness similar to other SBIRT programs, but possible that the results would be unique due to the sociodemographic profile of San Diego County residents. Previous SBIRT research focused on outcomes and effectiveness related to demographics such as age, gender, and race/ethnicity, but neglected to evaluate participants’ motivation to change at intake relative to outcomes at follow-up. Since SBIRT programs rely heavily on enhancing participants’ internal motivation, a closer examination of motivational variables is included in this analysis. The purpose of this study is to determine if sociodemographic and motivational variables reported prior to CASBIRT services (i.e., baseline) are related to outcomes at the six-month follow-up interview. Patients (n=577) surveyed at six-months post-intervention reported significant reductions in their use of alcohol and illicit drugs (p < .001). The percentage of patients reporting abstinence from alcohol and drugs increased (from 29.8% at intake to 50.7% at follow-up for alcohol and from 53.4% to 78.9% for drugs); patients who reported continued use did so at reduced frequencies. Bivariate analyses showed there were no statistically significant differences in outcomes for men and women. Age was related to outcome, with younger people reporting lower abstinence rates and more frequent use than older people. Non-Hispanic Whites reported slightly lower rates of abstinence and slightly higher frequency of use compared to all other ethnic groups. Although motivation to change at baseline was not associated with changes in drinking behavior, it was strongly associated with reductions in drug use. Patients using alcohol and drugs at baseline showed significant improvements at the 6-month follow up. CASBIRT services appear to be equally effective for participants, irrespective of their demographic characteristics, with some minor exceptions. The impact of motivation on reductions in drug use may underscore a mechanism by which SBIRT functions, indicating a direction for further research.

#325 4:00–5:30

Negative Social Reactions to Sexual Assault Disclosure and Discourse

Melissa Davis, Women’s Studies (M)
Esther Rothblum, Women’s Studies

Sexual violence is alarmingly common with as many as one in four women being raped in her lifetime. Negative social reactions are common responses to disclosure of sexual assault and are associated with poorer mental health functioning and increased rates of revictimization. A first step toward addressing this problem is to understand what types of social reactions sexual assault victims encounter that they consider negative. To answer this question, I tapped into the rich resource provided by Pandora’s Project, an online community for survivors of sexual assault (pandys.org). The message board component, called Pandora’s Aquarium, boasted over one million posts, nearly 16 thousand members, and a record of 373 users online at a given time. It was a vibrant, active, and growing community with guidelines in place to foster a safe space, one hopefully free of the negative reactions encountered offline. My goal was to identify common themes surrounding negative social reactions to sexual assault disclosure and rape discourse. I analyzed threads in the “Public Forums” related to disclosure and negative social reactions or expectations, specifically those entitled: Top 10 Stupidest Comments; “You’re Lying” – Terrible Secondary Wound; “Get Over It”; When asked: Why didn’t you fight harder; Shame and Telling – My Thoughts; and 5 Worst Betrayals. In sum, I utilized 868 posts from six message threads dating from June 2001 through November 2009. I identified eleven unique themes related to negative social reactions to sexual assault and rape discourse: 1) accused of lying; 2) denied rape label; 3) misconstrued as sex; 4) defended/forgave rapist; 5) blamed; 6) questioned; 7) shamed; 8) minimized; 9) intolerant of trauma reactions; 10) given advice; and 11) silenced. The study revealed a wider array of negative social reactions than previously reported in the literature.

Session C-4
Poster: Environmental Health and Ecology
Friday, March 5, 2010, 3:00 – 5:30 pm
Location: Montezuma Hall South

#324 3:00–4:30
Air Monitoring of Particulate Matter PM2.5 with Real-time Aerosol Monitors during Agricultural Burn Events in Imperial Valley, CA
Christopher Carey, Public Health (Environmental Health) (M)
Jenny Quintana, Public Health

About 35,000 acres of agricultural fields are burned annually in Imperial County, CA. During January-March of 2009, we monitored the air for particulate matter (PM) and aerosol black carbon during and following four burn events at locations of public access in the community at a distance of 0.1 miles to 3.5 miles from the burn. In addition, one burn event was monitored at two locations close to the burn (50 to 5000 feet). The burning of each field lasted 30–60 minutes and occurred between 10 am and 3 pm. Except for the aforementioned burn event, winds were calm, and the ground-level plumes were observed to go up to the inversion layer (3000’ feet or higher), and then to spread out for miles at the inversion layer. Sampling began before or during each burn and continued for a minimum of 24 hours and a maximum of 72 hours following each burn. PM was sampled with active-flow pDRs (MIE pDR-1200; Thermo Electron Corp., Franklin, MA) aethalometers (Model AE42; Magee Scientific Company, Berkeley, CA). Data from the pDR were adjusted using previously published correction factors when relative humidity exceeded 60%, and co-located EBAM data was used to correct pDR readings to mass equivalents. The levels of PM10 rose as high as 40,000 µg/m³ for a 5 minute averaging time and 6,500 ug/m³ for an hourly concentration during the burn where the monitors were located 50 to 5000 feet from burn event. For the four other burns where monitoring locations were more distant, hourly PM2.5 levels ranged from 3 to 35 µg/m³ during the hour of the burn. For all burn events, PM2.5 levels on the night (8 pm – 4 am) of a burn event were significantly higher than daytime values. For three burns air monitoring included 48 hour and for two of these monitored burns, nighttime levels were significantly higher (p<0.001) on the first night following the burn as compared to the second night following the burn. For the third burn, the PM2.5 values rose the night following the burn and remained at concentrations of 11-30 µg/m³ throughout the following day.

#326 3:00–4:30
Evaluation of Thirdhand Smoke Exposure to Polycyclic Aromatic Hydrocarbons through Indoor Contamination of Settled House Dust
Beth Wittry, Public Health (M)
Eunha Hoh, Public Health

Indoor pollution is a huge concern and has been linked to adverse health outcomes. A major contributing factor to indoor pollution is tobacco smoke from cigarettes. Environmental tobacco smoke (ETS) is a significant source of hazardous chemicals and has been shown to contaminate the air, dust, and surfaces in homes. This phenomenon is known as “thirdhand” smoke (THS), implying contamination is present long after the cigarette has been extinguished. Homes previously inhabited by smokers may contain significant levels of contaminants, consequently creating a health risk for the new nonsmoking tenants of that home. Polycyclic aromatic hydrocarbons (PAHs) are a component of ETS and have been detected in house dust. Some of the PAHs identified in house dust are carcinogenic, mutagenic, and/or tetragenic. Given that people spend the majority of their time indoors, PAHs in house dust is problematic, especially for young children. Recent research has shown that ETS is a significant contributor to PAH surface loading and PAH concentration in house dust. My study will further explore the contamination of dust with PAHs in smoker homes after new nonsmoking tenants moved in. House dust was collected from the homes of 150 families living in urban areas of San Diego during a change of occupancy. The samples were collected using the HVS4 cyclone vacuum system. PAHs were extracted from the dust using established methods and were analyzed using gas chromatography with mass spectrometry. Results were obtained from homes of previous and new tenants for living rooms of nonsmokers and living rooms and bedrooms for smokers. Statistical analysis of data is still in progress. I will determine if homes of smokers remain contaminated with THS when they move out and nonsmokers move in, and whether nonsmokers moving into former smoker homes are exposed to THS through contaminated dust in these homes.

#327 3:00–4:30
Methyl-t Butyl Ether Effects on Male Rat Reproductive Steroid Hormones and Aromatase mRNA
Do Hyung Kim, Public Health (Toxicology concentration) (M)
Ann de Peyster, Public Health

Methyl t-butyl ether (MTBE) improves motor vehicle fuel combustion efficiency. It was banned mainly due to environmental persistence, but uncertainties also remain about possible public health effects of contamination in surface and groundwaters. Studies using high MTBE doses report increased rat Leydig cell cancer and female mouse liver cancer, both of which could involve
reproductive steroid imbalances. P450 catalyzes testosterone (T) and estradiol (E2) synthesis and catabolism, and MTBE is known to be a mild liver P450 inducer. The possibility that MTBE alters aromatase (CYP19) that converts T to E2 was explored in male Sprague-Dawley rats gavaged for 14 days with MTBE doses ranging from 400-1500 mg/kg/day (n=10). Aromatase mRNA transcripts in liver and testis were quantified using qRT-PCR, and serum T and E2 were measured using enzyme immunoassays. Significant increases in liver aromatase expression were seen in low and mid dose groups compared to the control group (p=0.05). A decline after that seen at the highest dose might be explained by some generalized toxicity (mortality) also observed in the highest dose group. However, testis aromatase expression showed a dose-related decline. Serum T was reduced by 75% and 83%, respectively, after dosing with 800/1000 and 1200/1500 mg/kg/day (p<0.05). No statistically significant changes were found in E2. The increasing E2:T ratio noted is consistent with an increased mRNA expression, but since this is apparently mainly a function of declining T levels, reduced T production by Leydig cells exposed to MTBE, which was demonstrated previously in isolated rat Leydig cell cultures, could also be occurring here. No significant organ weight differences were observed after this relatively short dosing period. The hypothesis that CYP19/aromatase and steroid hormone homeostasis are altered by high doses of MTBE was supported primarily by the changes in aromatase mRNA and reduced T levels. The mode of MTBE action is expected to be clarified further after aromatase activity, protein levels, and total P450 measurements are completed on these samples.

**#328 3:00–4:30**

*Spatial Distribution of Traffic Related Air Pollutants in the Community of San Ysidro*

Lynelle Garnica, Environmental Health (M)
Penelope JE Quintana, Occupational and Environmental Health

The US-Mexico border crossing at San Ysidro is the busiest land border crossing in the world. This investigation seeks to understand how traffic and idling cars delayed at the border crossing affect air quality in the community of San Ysidro. Traffic-related air pollution has been reported to adversely affect lung, cardiac and reproductive health. Currently, there is no governmental air monitoring station in San Ysidro to characterize air pollution in the community. This study investigates spatial distribution of the following traffic related air pollutants in the City of San Ysidro: particulate matter 2.5 (PM 2.5), ultra fine particles (UFP), carbon monoxide (CO), and black carbon (BC). Fixed sampling sites were set up at various distances from the border on roofs of businesses and schools, and supplemented by mobile ground-level monitoring. The following real-time instrumentation was used: active-flow pDR (MIE pDR-1200; Thermo Electron Corp., Franklin, MA) aethalometers (Model AE42; Magee Scientific Company, Berkeley, CA), HOBO Carbon monoxide 3 channel data logger (H11-001; Onset, Bourne, MA), and P-TRAK Ultra fine Particle Counter (Model 8525;Trust Science Innovation, Shoreview, MN). Instrumentation was set to record 5 minute averages, and data was collected for at least 24 hours to 48 hours on the roof top sites and 1 minute averages for at least five minutes at ground level at each site during various months of the year. Initial sampling indicated highest levels of UFP are found nearest the border crossing (approximately 6 times as high as sites farthest from the border). PM2.5 concentrations were also elevated near the border. Further sampling is in process to understand how weather conditions, wind direction and traffic volumes play a role in the community’s exposure to air pollution. These results may inform planning for future public health and development activities in San Ysidro.

**#329 3:00–4:30**

*Participatory GIS in Accra, Ghana as a Tool to Neighborhood Definition and Differentiation*

Chung-Rui Lee, Geography (M)
John Weeks, Geography

Participatory GIS (PGIS) is a map based process-oriented approach which focuses on analyzing individual discussions for an ongoing event or activity. Combining Web2.0 tools, open sources, mapping Application Program Interfaces (APIs), and expert knowledge, a PGIS platform transforms the areal contextual meanings into extended attributes of map layers. Instant and real-time participation facilitates shared knowledge through web mapping services. In an urban area of a developing country such as Accra, Ghana, detailed information is often inaccurate or deficient. The need to obtain additional information for more precise outcomes has become a key topic in the study of Accra. This project predicts that we will be able to minimize issues of defining and differentiating neighborhoods by adding contextual meanings, photographs, personal observations, and other ancillary information (KML files) to Accra, Ghana map layers through a PGIS platform. Neighborhood classification in geodemographic studies utilize geospatial techniques that rely upon georeferenced census and survey data and map layers stemming from remotely sensed imagery. Where you live affects how you live; thus, the boundaries matter. PGIS minimizes the spatial biases within neighborhood classification, Modifiable Areal Unit Problem (MAUP) and ecological fallacies (EF).
#330 3:00–4:30

**Persistent Organic Pollutant Content of Plastic Debris found on San Diego Beaches.**

Almira Van, Public Health (M)  
Eunha Hoh, Public Health

Plastic debris has frequently been found in coastal and marine environments around the world. Often times, large sized plastics in coastal beaches are cleared by beach cleanup activities. However, small plastics measuring only a few millimeters in size are not easily retrieved during these clean ups. Due to the slow degradation process of plastics, plastic debris is persistent and accumulates in the marine environment often breaking down into smaller fragments. In addition to broken down fragments of plastics, plastic pellets used to manufacture various consumer products are often lost in transit or through urban runoff working their way into marine ecosystems. This raises concerns as plastic can serve as a waste product as well as possessing the ability to potentially have detrimental effects to food chains in marine ecosystems. Recently, plastic pellets and fragments were found to absorb persistent organic pollutants (POPs). POPs are well-known toxic chemicals to humans and to organisms in marine ecosystems. POPs are long lasting, easily dispersed, and its sources are from human activities such as the use of pesticides, additives and combustion. Plastic pellets and plastic fragments contaminated with POPs may also act as carriers of chemicals to wildlife interfering with ecosystem food chains. Natural body processes such as reproduction and growth have been stunted as a result of mistakenly ingesting marine debris resulting in a threat to marine species. Our goal in this study is to investigate occurrences of small plastic debris in San Diego area beaches and their contents of POPs in order to investigate the severity of the problem in this area. This is the first study in the area to be conducted involving characterization of debris and determination of environmental toxicity of plastic pellets and fragments on San Diego beaches. Sample collection has been conducted since October 2009 and will continue until February 2010. Sample analysis is currently in progress: small plastics are analyzed in terms of weight, quantity, type, and appearance. The chemical analysis of POPs will be analyzed by gas chromatography mass spectrometry.

#331 3:00–4:30

**Acoustic Monitoring of Spatial and Thermal Habitat Use of East Pacific Green Turtles (Chelonia mydas) in San Diego Bay, CA, U.S.A.**

Bradley MacDonald, Biology (M)  
Rebecca Lewison, Biology

Characterizing spatial habitat requirements has been an important component of terrestrial wildlife management and conservation over the past two decades, but has been less prominent in the conservation ecology of marine animals. Home range and habitat characterization are valuable tools for understanding how best to protect threatened marine species, as they can impact the extent and type of protection afforded to core habitat areas. The presence of East Pacific green sea turtles (Chelonia mydas) resident to San Diego Bay, CA, has been documented since the late 1970’s, where anthropogenic activities pose both direct and indirect threats. While it is known that San Diego Bay is an important foraging site for green turtles, little is known about the spatial extent of habitat use or high use areas. Southern San Diego Bay also contains a thermally altered environment: a warm water effluent outfall from a local power plant. Green turtles may modify their behavior in response to an altered thermal environment. This study will monitor the movements of green turtles in San Diego Bay through the use of acoustic telemetry. Re-sighting data and temperature data will be used to calculate home range size, map movement patterns, and assess thermal conditions across use areas. The findings of this study will inform conservation and management of East Pacific green turtles in San Diego Bay and, more broadly, green sea turtle habitat usage along urban-wildlife interfaces. By monitoring turtle movement across the Bay’s unique thermal conditions, this project also provides insight into the potential effects of coastal temperature changes on sea turtles.

#332 3:30–5:00

**Word Comprehension and Inhibition in Monolinguals and Bilinguals across the Lifespan**

Daniela Cherbowsky, Speech, Language and Hearing Sciences (U)  
Henrike Blumenfeld, Speech, Language, and Hearing Sciences

Previous research determined that those who speak a second language have better inhibition skills (Bialystok, 2004), perhaps because they must suppress one language when speaking another. As bilinguals age, they show advantages in cognitive control relative to monolingual peers. We will investigate if monolinguals and bilinguals inhibit words differently during auditory comprehension tasks. Do monolinguals and bilinguals suppress language differently and do these patterns change across the lifespan? Four groups will be tested, consisting of healthy English monolinguals and Spanish-English bilinguals ranging from ages 18-30 and 60-85. Participants will be asked to look at a screen...
containing four quadrants. A different picture will appear in each quadrant and the labels of two of those pictures will begin with similar sounding phonemes. These labels will sound similar within languages (e.g., CARROusel and CARROt in English; CERillo and CEREza in Spanish) or across languages (e.g., MARble and MARriposa in English and Spanish, respectively). A voice recording will then prompt the individual to identify one of the four pictures (i.e., the target). The eye movements of the participants will be recorded in order to track their looks to each picture. If participants activate the two similar sounding words in parallel, then they should look at both of the corresponding pictures (i.e., the target and the competitor). In the following trial, three of the pictures will be replaced with black asterisks and one with a gray asterisk. The participants must locate the gray asterisk. The speed of their responses to the gray asterisk will indicate the efficiency of their inhibition skills. Different presentation times (i.e., 200, 500 and 800ms) between the picture trials and gray asterisk trials determine how long inhibition stays active. We predict that bilinguals will release inhibition quicker than monolinguals across all age groups since this is a task they must perform within and across languages. Based on previous findings, we also predict that younger adults will be more efficient than older adults. This work may have future implications for monolingual and bilingual individuals with aphasia (a neurogenic language disorder).

**Idiom Processing in Aphasia**

Alexandria Triebsch, Speech Language and Hearing Sciences (U)
Tracy Love, SLHS

Individuals with expressive aphasia have demonstrated comprehension impairments for complex sentences (Love & Oster, 2002; Love et al., 2008 and references therein), but the root cause of these deficits remains a point of debate. One proposed theory of this comprehension deficit claims that individuals with expressive aphasia have disordered or slowed lexical access mechanisms (Love et al., 2008). This lexical impairment is argued to ultimately affect the fast acting syntactic parsing system in expressive aphasic patients, which leads to disrupted comprehension. The current study investigates one aspect of this theory by investigating the time course of lexical processing in this population. Specifically, we chose to examine how expressive aphasics process idioms in sentence contexts. Idiomatic phrases (IP) were chosen because these phrases have theoretically been argued to be encoded as single lexical units in the lexicon (Swinney & Cutler, 1979). These long “words” allow for a unique investigation of meaning activation in temporarily protracted “words”. We can accomplish this by capitalizing on the fact that these IPs also have multiple meanings—a figurative and a literal interpretation. So in example [1] below, the IP /wore the pants/ could mean either “wore jeans” or “took charge”—the latter figurative meaning being the correct interpretation once the prepositional phrase (in her family) after the IP is heard.

[1] The teenager living next door wore the pants* in her family after the tragic accident that happened last September

In order to test real time lexical processing, we employed a technique that allows for the moment by moment evaluation of word access during auditory sentence processing. In this study, cross modal lexical priming (CMLP, Swinney et al., 1972) was used to test which meanings of the IP were available at its offset (* in [1] above). Since this technique uses semantic priming as an indirect indicator of lexical activation, we selected probe words that were related to either the figurative or literal meaning of each idiom (i.e., duty or belt, above). This study employed a matched sentence design to control for a priori lexical decision times; where the figurative and literal related probe words for one sentence ([1] above) served as the unrelated control words for another sentence. We then compared lexical decision reaction times (word/non-word) to these visual probe words when they were related (to either the literal or figurative meaning) or unrelated across all 40 experimental items; a faster lexical decision time during related sentences indicating priming (and lexical activation). To date, 6 expressive aphasic participants (3 Broca & 3 Anomic aphasics with a mean age of 62 years, SD=12.9) took part in this 2 x 2 within subjects design study, (2 probe types-fig/lit x 2 rel/ctrl), returning for 4 weekly visits. Patients met all diagnostic criteria (as confirmed via an in-house licensed SLP), and had no history of neurological or psychiatric impairment. The preliminary results thus far reveal that overall, the anomic participants show exhaustive access for both figurative and literal interpretations at the offset of the IP. This pattern appears to differ from those individuals with Broca’s aphasia. Discussion of these patterns and their theoretical implications will be presented.

**Aging Effects on the Real Time Processing of Idiomatic Phrases During Auditory Sentence Comprehension**

Jonathan Brockman-Hawe, Speech, Language and Hearing Sciences (U)
Tracy Love, Speech, Language, and Hearing Sciences

Many studies have looked at the effects of aging on cognitive processes, with some research demonstrating that aging results in overall cognitive slowing (Hertzog, 1989). We are interested in exploring the potential slowing effects of aging on the real time language processing of idiomatic phrases (IPs). Here, we explore the effects aging has on one aspect of language processing—specifically, one’s ability to access multiple word meanings of items presented in fluent auditory sentence presentation. In this study, we capitalize on the fact that IPs such as “ring a bell”
Bilingual Adults' Use of Cognates in Verbal Fluency Tasks

Anna Zak, Speech Language Pathology (M)
Henrike Blumenfeld, SLHS

Our research investigates effects of the cognitive system’s organization on linguistic processing in bilingual adults. Verbal fluency tasks are a commonly used clinical tool which can provide insight into cognitive processing abilities, including executive functioning, semantic storage, and retrieval mechanisms (Gollan, Montoya, & Werner, 2002). Distinctions between monolingual and bilingual strategies used to name words can suggest fundamental differences in lexical organization across languages (Roselli et al., 2002). The use of cognates as a word retrieval strategy was examined during a verbal fluency task. Participants consisted of 30 Spanish-English bilinguals and 30 English monolinguals, who were asked to generate as many words as possible in a given category within one minute. Data from Blumenfeld (2008) were analyzed based on the position of cognate words within the sequence of all given responses. We predicted that bilinguals would initially utilize cognates as a word retrieval strategy more than monolinguals, with a declining proportion of cognates across the response-sequence. We also expected that the proportion of cognates bilinguals generated would be greater in a phonemic fluency task than in a category fluency task. Responses were categorized as either cognates (e.g., English “agency”/Spanish “agencia”) or noncognates (e.g., English “shirt”/Spanish “camisa”) in both languages and normalized across a 100-point scale to determine the likelihood of cognate production throughout the 1-minute response window. Normalized data were then examined in four percentage bins: 0-25%, 25-50%, 50-75%, and 75-100%. Results were compared across languages for bilinguals and monolinguals as well as across fluency tasks (i.e. phonemic and semantic). Preliminary results suggest that, for phonemic fluency, bilinguals’ use of cognates as a retrieval strategy decreases across the time-course in their less dominant language more than in their dominant language. However, bilinguals are increasingly more likely to produce cognates across the response-sequence in a semantic fluency task. Results suggest that cognitive status is a factor in word retrieval, and that the use of this strategy may depend on cues given (e.g., letter vs. category) and the individual’s language dominance. These findings may have implications for the influence of bilingualism and/or language dominance on cognitive processes as determined by fluency tasks.
**#336 3:30–5:00**

*Parallel Language Activation in Bilinguals with High and Low Language Proficiency*

Vanessa Howes, Speech-Language Pathology (M)
Henrike Blumenfeld, SLHS

There has been an ongoing debate in research as to whether or not representations of bilinguals’ languages are stored and processed in the same part of the brain. Some studies have demonstrated that the two languages are processed independently; however, research has also shown that parallel activation exists across languages depending on the type and constraints of the task. One such constraint are differences of voice onset times (VOT’s) across languages. VOT refers to the time between which air is released and when actual voicing occurs. For example, Ju and Luce (2004) found that when word pairs were phonetically similar to each other (including similar voice onset times), both languages were activated in parallel. However, if voice onset times of stop consonants (p,b,d,k,t) differed across English and Spanish, the two languages were not activated in parallel. In this study, we aimed to examine if these acoustic constraints existed equally for high and low proficiency bilinguals when they were presented with word pairs aimed at targeting activation in both languages (e.g. participants heard “COMb” in English and also saw a picture of a rabbit, “COnejo” in Spanish). We hypothesized that, if bilinguals were presented with English words that started with stop consonants, higher proficient bilinguals would show more activation of Spanish words with similar onsets but different VOT’s than lower proficient bilinguals. When high proficiency Spanish-English bilinguals heard English words (e.g. “COMb”), they also looked at cross-linguistic competitors (e.g., “COnejo”). Therefore, for high proficiency Spanish-English bilinguals, parallel activation occurred. However, for low proficiency bilinguals, this parallel activation was reduced. Results suggest that high proficiency bilinguals do activate their languages in parallel when processing words that start with voiceless stops, even when VOTs differ across languages.

**#337 3:30–5:00**

*Speech Movement Stability in Individuals with Cerebral Palsy*

Adeena Homampour, Speech, Language and Hearing Sciences (M)
Ignatius Nip, Speech, Language, and Hearing Sciences

Speech movement stability, or the similarity in which speakers produce speech movements, has been shown to increase with age (Green, Moore, & Reilly, 2002; Smith & Zelaznik, 2004). However, it is unknown if a comparable increase in speech movement stability can be observed for individuals with motor speech disorders, such as cerebral palsy. The purpose of the study is to examine if patterns of speech motor movements differ between participants with cerebral palsy and typically developing participants. The speech motor performance of two participants with cerebral palsy across three speaking tasks of varying cognitive and linguistic complexity was compared to previously gathered data on typically-developing and neurologically-intact 16-year-olds and adults across the same three speaking tasks.

We hypothesized that speech movement stability would be lower for participants with cerebral palsy than for typically developing individuals. Additionally, it was hypothesized that speech movement stability would increase for tasks that required more cognitive and linguistic demand for both groups. Kinematic data was collected using an optical motion capture system, which video recorded movements of 15 facial markers and created a real-time 3-D model of each participant’s face. Speaking tasks included a diadochokinetic (DDK) or alternating motion rate (AMR) task, a syllable repetition task, and a sentence repetition task. Each speaking task was reviewed and parsed into segments reflecting the open-close sequence of the lips and jaw. A zero-lag cross-correlation of lips and jaw movements was used to determine the degree of speech movement stability across repetitions of a speaking task. Statistical analyses will determine whether speech movement stability in individuals with cerebral palsy differ from the control participants. The research findings may provide greater insight into the speech motor system by revealing patterns of typical and disordered speech motor movement. Further research may have implications for the treatment of dysarthria.
Session C-6
Poster: Education
Friday, March 5, 2010, 3:00 – 5:30 pm
Location: Montezuma Hall South

#338 4:00–5:30
Essential Writing Tasks for the Upper Division English Learning Student
Xiomara Rivera, Linguistics (U)
Samraj Betty, Linguistics

The purpose of this study is to explore the academic needs of English learning transfer students by identifying the essential writing tasks found in upper division general education courses. In order for effective pedagogical material to be designed, students’ needs should be taken into consideration in the field of education, specifically in teaching English as a second language. Completing an analysis as such provides the necessary information to equip students for what they will face in a later classroom setting. By looking specifically at upper division general education courses the study focuses on the population of transfer students or other students of upper division standing who will need to succeed in these courses, in order to obtain a degree from a university such as San Diego State University. Previous studies at both San Diego State and elsewhere have been performed by conducting surveys of the perceptions of professors and students, as well as the collecting of educational artifacts in a wide variety of subject areas. This study will not attempt to analyze the writing task of all the distinct areas within general education, but look specifically at three areas of General Education Exploration courses. By examining writing tasks specifically in the collected syllabi, the skills English learners need at San Diego State University to be successful will be revealed. The results of my study will be useful for those who are developing curriculum for, or teaching, writing courses for upper division ESL students at SDSU. It will not only contribute to the Linguistics and potentially Rhetoric and Writing Studies departments at SDSU, but hopefully act as a reminder of the importance of analyzing the needs students have in order to incorporate them into a relevant course.

#340 4:00–5:30
Ethnicity, Class, and the Consequences of Academic Help
Acacia Schmidt, Psychology (U)
Jeff Bryson, Psychology

Nadler and his colleagues (1997, 2002) have presented a compelling model of some potential negative consequences of helping behaviors. One aspect of this has to do with the manner in which giving or receiving help may be determined by status relationships. In particular, Nadler (2002) demonstrated that a lower status person who seeks help may be negatively evaluated because their need is consistent with their lower status. On the other hand, Schneider et al. (1996) have discussed the negative effects that “assumptive” help (help given without being solicited) may have, as it implies that the target is incapable of succeeding on her own. The present study sought to examine the effects of academic help that was either solicited by the student or offered by the instructor, on perceptions of ability, improvement, and attributions for prior performance. To further examine the effects of status on these effects we varied the ethnicity (Asian, Latino, or Anglo) and family socioeconomic status (higher/lower) of the student. Participants (N = 244) took part in an online survey, in which they were assigned to one of 12 conditions – 3 ethnicities x 2 (SES levels) x 2 (who initiated help). They read a brief scenario, describing a student in a lower division speech class, who had received a low grade on her first speech. Ethnicity was manipulated by presenting a picture of the student, along with a name that was identifiably Asian, Latina, or Anglo. Socioeconomic status was manipulated by a description of her family background. This was followed by a brief description of who initiated the assistance; in one case the student initiated contact, in the other the instructor had called her in. Participants were asked to estimate her grade on that speech, her likely grade on the next speech, and her probable grade for the course, after which they rated the likelihood that each of a series of possible attributions could account for her poor grade. Estimates of her grade on the first speech varied significantly as a function of ethnicity (p < .05); the Asian student was assumed to have had the highest grade (67.1) and the Latina, the lowest (64.1). Estimated grade on the next test was influenced instead by SES (p < .05); the lower SES student was assumed to do poorer (81.92) than the middle class student (83.61). Anticipated grade for the class was more complexly determined. There were significant main effects for ethnicity (Asian student highest, M = 2.06), SES (higher SES = 2.02), and who had initiated help (higher if instructor initiated, M = 1.98). The Ethnicity x Who Initiated interaction revealed that the Asian student was presumed to do well regardless of who initiated, the Latina to do slightly better when self-initiated, and the Anglo to do much better if called in by the instructor, and poorly when the student had initiated the request.

#341 4:00–5:30
Faculty Support and Undergraduate Student Research at SDSU
Jacquelyn Szajer, Psychology (U)
Enrico Marcelli, Sociology

Studies have shown that being involved in a research project as an undergraduate college student is associated with desirable long-term outcomes such as success in graduate school and professional advancement. Accordingly, undergraduate research...
engagement has been gaining acclaim as an important part of the undergraduate experience (Hu, Kuh, & Gales, 2007). The current study examined the relationship between university-provided opportunities to engage in research and the number and types of students who do so at San Diego State University. We employed data from the 2009 National Survey of Student Engagement (NSSE) to estimate how the amount and quality of student support necessary for succeeding academically and the perception of helpful faculty members influences the probability of having engaged in research as an undergraduate. Specifically, we hypothesized that seniors with more favorable perceptions of university and faculty support will be more likely to have participated in a research project during their time at SDSU. We further hypothesized that faculty support will be relatively more important than general university support. Analysis of 2009 NSSE data suggested that approximately 14 percent of 10,432 seniors had engaged in research during their studies at SDSU. Furthermore, a higher proportion of engaged students reported that SDSU supports student academic success “very much” (25 percent compared to 20 percent of seniors who had not participated in a research project), and engaged seniors reported a higher level of faculty assistance on a seven-point scale (5.8 versus 5.2). Logistic regression analysis revealed that although general university support was not associated with having engaged in research as an undergraduate student at SDSU and better relations with other students had a negative association, those who perceived faculty as being more helpful were more likely to have participated in a research project. These findings suggest that greater institutional support for faculty involvement in undergraduate research may increase the number of research-active students at SDSU.

#342 4:00–5:30

First Generation MBA Students and Academic Success

Geri Nelson Gallardo, Student Affairs (M)
Marilee Bresciani, ARPE

Exploring graduate student transition from undergraduate studies to graduate studies, and persistence through a graduate degree has been relatively overlooked. The goal of this research project is to provide an in-depth understanding of the experiences of graduate students in a Masters of Business Administration program at California State University San Marcos, a medium size four-year public institution in Southern California. Students will be asked to voluntarily participate in an anonymous survey and one-on-one interviews. Further exploration of the realities of others and the central phenomena of graduate student success indicates that the constructivism paradigm will be utilized. The qualitative flexible design will be utilized with the implementation of the Revised Academic Hardiness Scale (2005) for the survey.

#343 4:00–5:30

Evaluation of Integrated Planning Systems in Southern California Community Colleges

Jerry Buckley, Educational Leadership (D)
William Piland, ARPE

California community colleges in the twenty-first century will serve an increasing number and diversity of students with fewer state financial resources. Limitations in both state and federal funding for California community colleges will require new models of planning and resource allocation. The diverse mission of community colleges will become more difficult to support as resources continue to become scarce during the next decade, but identification of efficient planning models may assist colleges in maintaining high quality educational programs. Efficient planning and budgeting methods will be essential to maintain open access and financial equity to the students served by these institutions. Integration and simplification of planning processes also has been mandated by external accrediting agencies. This study surveyed current methods used for planning, budgeting, resource allocation, and program evaluation in the California community colleges while performed in-depth analysis of planning practices in the San Diego and Imperial Valley region. Statewide results indicate a significant difference between current practice and perceived importance of the application of college planning processes, utilization of institutional priorities, methods of financial resource allocation, budgeting, and integration of planning and budgeting with program review. Recent funding shortfalls have emphasized the need to implement more efficient planning and budgeting methods. Colleges indicate that zero-base and performance funding may play a role in future budget models. The majority of San Diego and Imperial County community colleges are still developing and implementing integrated planning processes that utilize outcome assessment, too recently to have demonstrated increased institutional effectiveness. Results also show that colleges have integrated planning, budgeting, and program review processes in response to their accreditation cycles. The reluctance of shared governance groups to embrace outcome measurement has slowed the implementation of integrated planning and continuous quality improvement measures within California community colleges. Useful integrated planning models exist within California, with institutions adopting best practices that meet specific needs, based upon college and district size.
Session C-7
Poster: Computer and Computational Sciences II
Friday, March 5, 2010, 3:00 – 5:30 pm
Location: Montezuma Hall South

#344 3:00–4:30
How Many Microbial Genes are there in the World?
Nicholas Celms, Computer Science (U)
Robert Edwards, Computer Science

This year the milestone 1,000 complete microbial genome was sequenced. Every new genome brings a new suite of unseen genes, as well as orthologs of known genes. The pangenome, the complement of all genes, has been calculated at different taxonomic levels, from phyla to genera, for all groups that have sufficient numbers of sequenced genomes. The selection of genes that contribute to an organism has been mathematically modeled as individual pools of genes with a probability of selection. Some genes occur in pools with a high probability of selection, as they are found in all of the genomes that contribute a group, whereas genes found uniquely in one or a few genomes have a very low probability of selection. The pools reveal interesting biological traits – a few genes are floating through biological space, being chosen rarely and not fixed in the population. Mobile genetic elements are common, and phages are more likely than plasmids, while the core genome is consistent across genera.

#345 3:00–4:30
PhAnToMe
Brad Hull, Computer Science (M)
Robert Edwards, Computer Science

The PhAnToMe project is creating powerful, user-friendly tools for annotating bacteriophages by building on two currently existing tools: The SEED is one of the most popular microbial annotation tools to date, and Biobike is a cyanobacterial database with a Visual Programming Language interface that allows for fluid, logical statements of the desired goal, and a simple way to reach it. Neither system has tools for phage genome annotation. Our goal is to create a fusion of the two, the friendly, powerful interface of Biobike accessing the database and infrastructure of the SEED. Local copies of both the SEED and Biobike have been installed, and links have been made between Biobike and the SEED’s databases. Now Biobike is able to access and display any bacteriophage that is stored in the SEED’s databases, allowing the end user to query the phage genomes with a simple visual programming language. Work is underway to design functions to manipulate and annotate currently existing or new bacteriophages added to the database. We are working on cross-examining both systems and their methods of operation, and contrasting that over a wide range of programming languages to see if there is a difference in performance between them, and if so, why. Upon completion, our tools will allow phage biologists, even ones unfamiliar with computer programming, to add and annotate phage genomes easily.

#346 3:00–4:30
Determining Phage Lifestyle Using Random Forests
Katelyn McNair, Computational Science (M)
Robert Edwards, Computer Science

There are two distinct lifestyles of phage: lytic and lysogenic. Determining which group a newly sequenced phage falls into is currently manually curated by hand using standard culturing techniques. I looked at known phage genomes and use a random forest classifier to determine which proteins are important for classifying phages based on their lifestyle. I then create a position vector of randomly sampled proteins, and a similarity vector for each phage genome. Each value in the similarity vector represents the protein with the highest similarity score for that phage genome, against that randomly sampled protein. I do this for each known phage genome and then create a similarity matrix. Using this matrix I train a random forest to classify unknown phage into lytic or lysogenic lifestyle. My classifier is correctly able to determine whether phages are lytic or lysogenic 100% of the time.

#347 3:00–4:30
Distribution Frequency of PBP2a Encoding Methicillin Resistance in Metagenomes
Victor Seguritan, Computational Science (D)
Anca Segall, Biology

Human infections caused by antibiotic resistant microbes are on the rise and spreading globally. According to the CDC, Methicillin Resistant \textit{Staphylococcus Aureus}, or MRSA, infects close to 100,000 people and is responsible for 19,000 deaths annually. Methicillin resistance is encoded and spread by the horizontal transfer of mecA, the gene that encodes the protein Pbp2a. Pbp2a is an analog of the protein Pbp2. Both proteins function to build bacterial cell walls and can be inactivated in the presence of methicillin, leading to cell death. Resistance is conferred by the presence of Pbp2a because this isoform has much lower affinity for methicillin than its analog, Pbp2. Metagenomic data has been obtained from a multitude of different environments. We are interested in discovering the frequency of occurrence of the mecA gene in metagenomes based on the extent to which mecA-like genes occur in environmental samples. To do so we have
determined the frequencies of mecA genes calculated in close to 400 metagenomes. The frequency with which the gene occurs in the metagenomes was obtained by counting the best BLAST alignments and normalizing to the total number of sequences in each metagenome. Generally the frequencies of mecA-like genes in the metagenomes are very low. The highest frequency occurs in wastewater environmental samples, followed by human and marine metagenomes. Zero occurrences were observed in coral, fish, freshwater, and deep-water marine samples. Frequencies are clustered by Self-Organizing Maps (SOM) and visualized by Principle Component Analysis (PCA) to determine the relationships of metagenomes in terms of the frequency of occurrence the mecA gene. Our analyses were done using Matlab built-in functions. Environmental samples constitute a reservoir of mecA genes, and understanding the distribution, dynamics and evolution of mecA-like genes will provide insights into the development of antibiotic resistance.

#348 3:00–4:30
Identifying the Frequency of Quinolone Resistance Genes in Environmental Samples
Sajia Akhter, Computational Science (D)
Robert Edwards, Computer Science

Quinolones are broad-spectrum antibacterial agents and their extensive use has resulted in the development of widespread resistance. The abundance of publicly available metagenome (random community genome) sequences provides a snapshot of the genetic background of quinolone resistance. For this study, the frequency of mutations that altered the quinolone target enzymes (DNA gyrase encoded by the gyrA and gyrB genes and topoisomerase IV encoded by the parC and parE genes) were identified in over 300 metagenomes containing over 50 million nucleotide sequences. BLAST was used to find homologs, and global alignments were used to score the presence of resistance alleles in the sequences. This analysis showed that there were proportionally more resistance alleles in gyrA than parC. Almost all of the metagenomes associated with animals have gyrA resistance alleles, but not parC resistance alleles, likely reflecting the medical and veterinary history of antibiotic treatment of these animals.

#349 3:00–4:30
Predicting Glaucoma Progression Using Decision Trees for Clustered Data by Goodness of Split
Lucie Nguyen, Computational Statistics (D)
Juan Juan Fan, Mathematics and Statistics

Predicting who will progress has been recognized as one of crucially needed developments for glaucoma management. Unfortunately, there is currently little consistency among practitioners and researchers in the assignment of visual field progression risk factors. To this end, a decision tree procedure is proposed that deals with the correlation between the fellow eyes from the same patient through the generalized estimating equation (GEE) approach. We adopt the goodness-of-split pruning algorithm of LeBlanc and Crowley (1993) to determine the best tree size. Simulation studies for assessing the proposed tree are presented. To limit the final number of meaningful prognostic groups, an amalgamation algorithm is employed to merge terminal nodes that are homogenous in glaucomatous progression. The resulting prognosis rules seem to offer simple yet clear and insightful interpretations.

Session C-8
Poster: Engineering
Friday, March 5, 2010, 3:00 – 5:30 pm
Location: Montezuma Hall South

#350 3:30–5:00
Preliminary Erosion Bed Research: Three-Dimensional Scanning Analysis
David Flickinger, Construction Engineering (U)
Colin Milberg, Civil, Construction, and Environmental Engineering

The use of laser scanning for investigating water and soil behavior during erosion is a relatively new research method. As such, the opportunities for investigation based on the kind of data analysis available through 3D laser scanning are not yet defined. San Diego State University is in a unique position as few civil engineering programs have either a large scale erosion bed or a 3D laser scanner. This study is an attempt to identify opportunities for research afforded by this combination by looking for patterns in several different kinds of data available through the laser scanning developed from scans of several erosion experiments with varying compaction, rainfall, and slope. In this particular scan set the variation in slope in the erosion bed could not be investigated in detail because only two slopes were used and only two experiments were conducted with the alternative slope.
The information derived from the laser scanner and used for the comparisons between the different erosion experiments were primarily focused on the geometry and patterns of the ruts created in the soil. The study looks at the pattern of the ruts as well as the maximum and minimum depth, average depth, and distribution in the depths of the ruts at three different cross-sections distributed along the length of the erosion bed. The main objectives of this research are to identify new areas in which further testing can be done to enhance our knowledge of soil erosion and to identify the capabilities of three-dimensional laser scanning and the associated post-processing software to develop information useful in future civil engineering research. This report contains a description of the research process used, the potential erosion patterns suggested, and the lines of research indicated for future testing. This research was conducted by David Flickinger, under the supervision of Dr. Milberg and in consultation with Dr. Beighley at San Diego State University.

#351 3:30–5:00  
**Biological Materials**  
Yen-Shan Lin, Mechanical Engineering (M)  
Eugene Olevsky, Mechanical Engineering  
Teeth, the most important mineral tissue, are essential to biting. After hundreds of millions of years of evolution, teeth evolved into an optimized structure to increase the efficiency of biting mechanism. It is surprising that some natural materials have mechanical properties which are beyond those can be achieved by synthetic approach. The tooth is comprised of outside enamel which is harder and inside dentin which is tougher. The major feature of dentin are tubules which are surrounded with peritubular dentin. The intertubular dentin matrix is usually randomly orientate on the plane perpendicular to the dentin formation.

#352 3:30–5:00  
**Study Of Three Window Designs for a Small Particle Solar Receiver**  
Onkar Mande, Mechanical Engineering (M)  
Fletcher Miller, Mechanical Engineering  
Central receivers for solar power towers have recently been under intense investigation. They can convert solar radiation into electricity by supplying heat to a thermodynamic cycle. In particular, air-cooled solar central receivers can power gas turbine engines for electrical generation. Solar heating of the compressed air is realized in a pressurized volumetric receiver. A new type of receiver module consists of an insulated pressure vessel, closed by a quartz glass window, with small particles as an absorbing medium. The process has so far been investigated in several countries with different designs with varying power outputs. However, the critical part of the whole assembly is the window which transmits solar flux into the receiver. The objective is to analyze which window designs and installment procedures support a safe and efficient operation of future plants with this technology. The main focus of this project is to analyze three window designs: one large window, multiple small windows placed adjacent to each other, and a design with many quartz tubes with gas flowing through them. A part of this work is carried out by using Finite Element Analysis of quartz glass windows of different shapes using the commercial software Hypermesh. The analysis will be performed taking into account the load and boundary conditions for the three window designs. The operating conditions for the receiver will provide a uniform 10bar pressure distribution on the window with temperatures in the range 300K to 1200K. Mainly, this poster lists the types of materials that should be used for the window and seals, and additionally, the geometries for each window design. This project is multidisciplinary in nature which combines the thermodynamic study with structural analysis followed by modeling. Further suggestions will be made for cooling of the window followed by window mountings.

#353 3:30–5:00  
**A Morphing Turbine Blade for Wind Energy Application**  
David MacPhee, Mechanical Engineering (D)  
Asfaw Beyene, Mechanical Engineering  
This research project is directed at designing and testing a morphing turbine blade for low speed applications such as wind and wave energy conversion. Traditionally, blades used in wind and wave energy conversion are either rigid and symmetric, as in the case of the Wells turbine, or asymmetric and flexible. In the case of wind energy conversion, the turbine blades are asymmetric aerofoils, which experience deflections under loading conditions. This causes the blade to deform from its original shape, and in high Reynolds number flow this can cause stall. The premise of this project is to investigate a blade capable of passively altering its trailing edge angle in the direction of flow, therefore maximizing blade efficiency at off design conditions.
\textbf{#354  3:30–5:00}  
\textit{Effect of Die Shape on SPS of Alumina}  
Evan Khaleghi, Mechanical Engineering (D)  
Eugene Olevsky, Engineering

Spark plasma sintering is a growing area of research where powder specimens are consolidated using electric current as the heating mechanism, with applied pressure. Much of the current research in this area uses simple cylindrical specimens, which is not useful to industry due to their creation of only complex parts. The goal of this research is to investigate how the gradients in current density in the die affect the gradients in temperature, grain size, and density in the specimen. Using the simplest case of a cylinder and a prism, we can evaluate these effects.

\textbf{#355  3:30–5:00}  
\textit{Uncertainty Quantification of Response Prediction for High Velocity Impact of Composite Laminates}  
Pablo Salas, Aerospace Engineering (D)  
Satchi Venkataraman, Engineering

More and more often, numerical simulations are used to partially replace full scale ballistic composite impact experimental tests. Accurately validating numerical predictions strongly depends on the existent uncertainty level and the amount of test data available to correlate with the numerical results. Therefore, it is necessary to systematically validate the model(s) against data at different sub-system levels as well as to identify and quantify the sources that contribute to the total uncertainty in the composite system. The use of Bayesian updating methods and Bayesian network models to update prediction response for composite impact problems as more tests from different levels become available can help identify various sources of uncertainty. Such approaches are being developed for simple structural problems and their implementation for model validation and verification of impact response prediction of composites will be investigated. Bayesian based approaches will be used to quantify the effect of physical and numerical uncertainties at each level and to understand how uncertainties are propagated from lower system levels (coupon tests) to higher system levels (ballistic tests). We hope to effectively identify which areas or tests of the hierarchical validation network introduce critical uncertainties to the system. The effect of modeling and numerical errors will be incorporated into the Bayes network. Errors differ in nature and it is important to account for them in the uncertainty propagation process. Correctly characterizing modeling, numerical and experimental errors can help determine how to better allocate resources and experimental tests to improve the system response. Once the Bayes network has been entirely defined, new available evidence can be incorporated as additional nodes into the network. Sensitivity analysis can be used to identify the model parameters that contribute to the most uncertainty. It will be then investigated which node or set of nodes inside the network need to be provided with more evidence/tests or improved accuracy to reduce the uncertainty of the critical nodes earlier identified by the sensitivity analysis.

\textbf{#356  3:30–5:00}  
\textit{Current Activated Tip-Based Sintering (CATS)}  
Ahmed El Desouky, Engineering Science/ Applied Mechanics (D)  
Khaled Morsi, Mechanical Engineering

Spark Plasma Sintering (SPS) has emerged as a process with unique advantages such as lower sintering temperatures and shorter holding times than conventional sintering, in addition to the production of materials with unique microstructures and properties. However, the process has been largely limited to the production of bulk materials with simple geometries on the macro-scale. In this paper preliminary experimental and modeling results on novel current activated tip-based sintering (CATS) of ultrafine nickel powder are presented. CATS enables the selective sintering of micro-scale features using a moving or stationary (electrically conductive) tip configuration. A finite element model was also developed to investigate current and temperature distributions under typical CATS conditions.

\textbf{#358  3:30–5:00}  
\textit{Structures of Counter-flow Flames}  
Vaishali Amin, Engineering Sciences/Applied Mechanics (D)  
K. Seshadri(UCSD), F.A.Williams (UCSD), Gustaaf Jacobs (SDSU)

The objective of this research work is to test a detailed chemical-kinetic mechanism (San Diego Mechanism) by comparing extinction strain rates measured in a counter-flow configuration with those found in numerical computations. We will also develop reduced mechanisms by deleting unnecessary steps and identifying steady-state species. We aim to minimize uncertainties in the rate parameters employed and also to find species and reactions crucial to describe the system being investigated.

\textbf{#450  3:30–5:00}  
\textit{High-Order Resolution Eulerian-Lagangrian Simulations of Particle Dispersion in the Accelerated Flow behind a Moving Shock}  
Thomas Dittman, Aerospace Engineering (M)  
Jacobs Gustaf , Engineering

This poster presents a computational study of the two-dimensional particle-laden flow developments of bronze particle clouds in the accelerated flow behind a moving normal shock. Particle clouds with a particle volume concentration of 4% are arranged initially in a rectangular, triangular and circular shape. Simulations are performed with a recently developed high-order resolution
Eulerian-Lagrangian method, that approximates the Euler equations governing the gas dynamics with the improved high order weighted essentially non-oscillatory (WENO-Z) scheme, while individual particles are traced in the Lagrangian frame using high-order time integration schemes. Reflected shocks form ahead of all the cloud shapes. The detached shock in front of the triangular cloud is weakest. At later times the wake behind the cloud becomes unstable and a two-dimensional vortex-dominated wake forms. Separated shear layers at the edges of the clouds pull particles initially out of the clouds that are consequently transported along the shear layers. Since flows separated trivially at sharp corners, particles are mostly transported out of the cloud into the flow at the sharp front corner of the rectangular cloud, and the trailing corner of the triangular cloud. Particles are transported smoothly out of the circular cloud, since it lacks sharp corners. At late times, the accelerated flow behind the running shock disperses the particles in cross-stream direction the most for the circular cloud, followed by the rectangular cloud and the triangular cloud.

#451 3:30–5:00

Evaluation of a Potential Flow Model for Propeller and Wind Turbine Design

Scott Palmiter, Aerospace Engineering (M)  
Joseph Katz, Engineering

A three-dimensional, potential flow based, unsteady panel code was used to model the flow over rotating propeller blades. It is assumed that for best performance, flow separations must be avoided on the rotating blades of propellers and wind turbines. In this case, idealized tools such as the one used here are significantly faster and simpler for calculating the surface pressure distribution and the resulting performance parameters. Similar experimental data on the surface pressures and on common performance parameters are widely available on propellers (and less on wind turbines) and therefore the validation was performed on a two-blade NACA propeller. In the first part of this study, computed results were validated and were found to compare favorably with the experimental data for a wide range of performance parameters. In the second part of this study, a rotor optimization is performed, using a generic rotor blade shape. For simplicity, a rectangular blade with several taper ratios and linear twist was used. The computed results indicate that even with this simple geometry, a more efficient design (than the baseline) is possible. It is concluded therefore that by using this tool more complex blade shapes and customized airfoil sections can be developed, leading to additional improvements in performance and efficiency.

Sessions: Saturday, March 6

Session D-1  
Oral Presentation: Biochemistry  
Saturday, March 5, 2010, 8:00 am  
Location: Backdoor

#359 8:00

Phosphate Dependency in Interfacial Metal Bridging of an Antibody and its Antigen

Maria Gutierrez, Chemistry and Biochemistry (U)  
Tom Huxford, Chemistry and Biochemistry

Interfacial metal bridging in antibody recognition is not a well characterized phenomena. The first direct observation of this event was resolved in the binding of sphingosine-1-phosphate and the humanized monoclonal antibody LT1009. The amino acid residues involved in calcium coordination are also present in certain class 1 and class 2 antibodies and may be responsible for employing this interfacial metal to recognize phosphate groups in its receptor’s epitope. The presence of some antibodies with this motif has been found to play a crucial role in patients with systemic lupus erythematosus and blocking of HIV-1 viral infection of T-cells via CD4 receptors in vitro. Thus, we set out to resolve the ubiquitousness of this motif and determined its presence in four mouse germ-line immunoglobulin kappa light chain variable region genes. Furthermore, we will test the hypothesis that metal bridging plays an important role in the mechanism of recognition of phosphate groups in antibody/antigen complex formation by utilizing phosphatases to remove phosphate groups from receptor epitopes.

#360 8:15

Coxsackievirus B3 Infection Induced Apoptosis in Neurogenic Regions of the Neonatal Central Nervous System

Chelsea Ruller, Cellular and Molecular Biology (M)  
Ralph Feuer, Biology

Coxsackieviruses are significant human pathogens, and the neonatal central nervous system (CNS) is a major target for infection. Despite the extreme susceptibility of newborn infants to coxsackievirus infection, tropism for the CNS, and a relatively high infection rate among infants, few studies have been aimed at determining the long-term consequences of infection on the developing CNS. We previously described a neonatal mouse model of coxsackievirus B3 (CVB3) infection and discovered that proliferating stem cells in the CNS were preferentially targeted for infection. Since CVB3 is a cytopathic virus, and therefore may
damage target cells, we evaluated the later stages of infection, the ensuing inflammatory response, and subsequent developmental defects that may occur following the loss of neural stem cells. We infected one and three day-old mice (intra-cranially) with a recombinant CVB3 expressing eGFP (107 plaque forming units) and characterized brain pathology by histology, immunofluorescence microscopy for neural markers, viral protein, and apoptosis, and brain wet weight measurements of surviving mice. A greater amount of apoptosis was observed in the subventricular zone and rostral migratory stream (RMS) of infected mice as compared to mock-infected, which might indicate the early loss of proliferating (Ki67+) neural stem cells in neurogenic regions of the CNS. These apoptotic cells were found to be nestin+, indicating that stem cells were targeted and dying at a higher rate in infected mice, as compared to mock-infected mice. Despite the large loss of proliferating (Ki67+ or BrdU+) neural stem cells through apoptosis, no reduction in total cellular proliferation was observed in three-day old infected mice within the neurogenic regions of the CNS, as compared to mock-infected mice. However, we observed a significant reduction in brain wet weight over time within infected mice, as compared to mock-infected mice. Therefore, the developmental defects induced by a relatively common infection during the neonatal period may be long-lasting, and the prognosis for newborn infants recovering from acute infection needs to be re-explored. With this in mind, long-term neurological sequelae might be expected following neonatal CVB3 infection.

#361 8:30

**Biochemical Characterization of Phosphate Binding Domain of STS-1 Protein**

Jesal Patel, Biochemistry (M)
Tom Huxford, Biochemistry

By interacting with MHC complexes on the surfaces of antigen presenting cells and constantly monitoring cellular contents, T-cells play a major role in cell-mediated immunity. T-cell receptor activation promotes a number of signaling cascades that regulate cytokine production, cell survival, proliferation, and differentiation. Shc is an adapter protein that is expressed from the earliest stage of T-cell development. Shc is rapidly phosphorylated on tyrosine (Y317) after the T-cell receptor (TCR) gets activated. Phosphorylated Shc binds to Grb-2 protein activating Ras-mitogen protein kinase (MAPK), which is very important in certain types of cancer. Shc also plays an essential role in thymic T-cell development. It has been found that the STS-1 protein is a suppressor of the T-cell receptor signaling pathway. It negatively regulates signaling downstream of the TCR. STS-1 contains an N-terminal ubiquitin associated (UBA) domain, esterase domain, Src-homology-3 (SH3) domain, and a C-terminal phosphoglycerate mutase (PGM) domain. Crystal structures of certain domains, like C-terminal domain, PGM, and SH3 domain, have been studied but the structure of full length STS-1 has not been determined yet. We are studying in vitro biochemical binding and structural studies of STS-1. We have purified the N-terminal domains of the STS-1 protein and performed pull-down assays with peptides from Shc. Also we are in the process of purifying full length STS-1 for further studies like crystallization and binding assays. We intend to study crystallization of STS-1 to analyze phosphatase activity. Binding assays will also be performed to understand T-cell regulation more efficiently.

#362 8:45

**Identification and Functional Analysis of Neuronal Migration Genes in Planarians**

Martis Cowles, Cell and Molecular Biology (M)
Ricardo Zayas, Biology

During development of the central nervous system (CNS), neurons are born from stem cell precursors, differentiate, and then migrate to their final locations where they mature and form synaptic connections. The interruption of signaling events that guide neurons to their correct destination can cause severe developmental disorders. Although defects in genes involved in neuronal migration have been associated with CNS abnormalities, their specific role(s) remain poorly understood. We are studying the role of neuronal migration genes in freshwater planarians. Planarians possess a population of adult stem cells that support an almost unlimited capacity for tissue regeneration. Upon amputation, planarians replace the CNS and regain normal function, an ability not shared by most other model organisms currently studied. As a first step to examine neuronal migration during regeneration in the planarian *Schmidtea mediterranea*, we have compiled a list of more than 60 genes required for migration in the CNS of humans, *Caenorhabditis elegans*, and *Drosophila melanogaster*. BLAST comparisons of these genes to the *S. mediterranea* genome have revealed 40 planarian genes that are predicted to encode conserved proteins implicated in neuronal migration. We are screening these candidates for CNS expression by performing whole-mount in-situ hybridization. Of the 33 genes screened thus far, 22 are expressed in the CNS, and their functions during regeneration have been assessed using RNA interference (RNAi). These functional analyses have revealed five neuronal migration candidates that result in a CNS regeneration defect following RNAi, and we are currently further investigating the function of these genes during regeneration and tissue homeostasis. Characterization of neuronal migration genes in planarians will provide a better understanding of how neural regeneration is achieved in this organism and how neuronal migration genes function during stem cell differentiation in the CNS.
Elucidating the Roles of Hepatitis C Virus Alternative Reading Frame Proteins

Breeann Kirby, Molecular Biology (M)
Roland Wolkowicz, Biology

The hepatitis C virus (HCV), a member of Flaviviridae, is the leading cause of liver transplant and a high risk factor for liver cancer. The 9.6Kb genome is organized as a large open reading frame (ORF) flanked by non-translated regions (NTR) that is translated into a single polyprotein subsequently cleaved by host and viral proteases. In recent years, it has been found that alternative reading frames (ARFs) may occur, resulting from little understood mechanisms causing ribosomal shifting into the +1ORF/+2ORF, thus creating ARF proteins of varying sizes, depending on where ribosomal shifting occurs and/or when stop codons are encountered. Though antibodies to many ARF proteins have been isolated from sera of infected individuals, current research has focused on four likely sites for ribosomal shifting and their resulting protein products: a region of consecutive adenine (A) residues within codon 8-11 (ARF/F), a non-AUG internal entry site (IES) at codon 26 (+1ORF26), an IES at codon 42 (+1ORF42), and an AUG IES at codons 85/87 (+1ORF85). To date, the function of these ARF proteins remains elusive and their effect on the HCV lifecycle or HCV pathogenesis unclear. In order to further investigate these roles, we have cloned ARF products and expressed them transiently, constitutively, and conditionally in hepatocytic (Huh7.5.1) and non-hepatocytic (293T) cells. Using Core expression (the first translated protein of the viral proteome) as indicator, we have monitored their influence on viral processes upon infection or transfection with the JFH1 genotype 2a HCV strain. Importantly, our approach allows us to study the effects of these ARF proteins in the presence of a fully replicative virus and to compare viral processes in both hepatocytic and non-hepatocytic cells. Upon transfection or infection of JFH1 in trans with the ARF constructs, we determined that the ARF proteins caused a positive increase in Core production in the early stages of HCV's lifecycle. This data is in contrast with current findings that did not use a fully replicative virus, suggesting that the relationship between HCV and the ARF proteins is more complicated than previously thought.

Discovery of a Novel Mosquito Densovirus through Viral Metagenomic Screening

Yan Wei Lim, Cell and Molecular Biology (M)
Forest Rohwer, Biology

Mosquitoes vector many viral pathogens which cause high rates of morbidity and mortality in humans, including Dengue and West Nile Virus. Alternative methods for mosquito control are increasing in popularity as resistance to insecticides and a lack of compliance with constitutive public health measures are on the rise. Densoviruses are small single-stranded DNA viruses which infect insects. These viruses have very specific host ranges, and can cause mortality at the larval stage, or remain as persistent infections throughout the insect’s life cycle. Densoviruses of mosquitoes have been commonly detected in mosquito cell lines, and more rarely in wild-caught mosquitoes. Here, we present evidence of a novel mosquito densovirus in field caught Culex erythrothorax mosquitoes from San Diego County. This virus, C. erythrothorax densovirus, had high similarity at the nucleotide level to other mosquito densoviruses, including A. albopictus densovirus and H. equinus densovirus, however, neither of these mosquito species exists in San Diego County. C. erythrothorax densovirus was first detected in pooled mosquito samples using metagenomics, i.e. direct viral DNA extraction coupled with high-throughput sequencing. We later confirmed the presence of this virus and the novelty of its nucleotide sequence using PCR. C. erythrothorax is the most common mosquito in San Diego County, and is suspected to be an emergent vector of West Nile Virus. A species-specific densovirus would be a useful bio-control agent as a direct larvicide, and also indirectly as a vector for paratransgenesis. Paratransgenesis takes advantage of vector symbionts, introducing genes that are lethal or block viral transmission into the vector via the symbiont genome. The persistent nature of densovirus infections in adult mosquitoes would allow for successful paratransgenesis, and control of C. erythrothorax-borne viral diseases.

Sansalvamide A and its Apoptotic Mechanism in Cancer Cell Lines

Katherine McKiernan, Biology (M)
Shelli McAlpine, Chemistry

The process of programmed cell death, apoptosis, allows individual cells to die without damaging neighboring tissue. Cancer cells have the ability to bypass the apoptotic pathway through a number of mechanisms, where they utilize anti-apoptotic proteins such as heat shock protein 90 (Hsp90). Thus, most cancer cells over-express Hsp90 in order to ensure they can bypass numerous
apoptotic mechanisms within the cell. Sansalvamide A has been shown to have anti-cancer activity against multiple cancer cell lines. The McAlpine lab has determined that Sansalvamide A inhibits cell growth by inhibiting the function of Hsp90. In this study, we utilize several potent derivatives made by our lab to investigate the apoptotic mechanisms of San A-amide derivatives in pancreatic (PL45) and the drug-resistant colon (HCT-116) cancer cell lines. Further, we measured Caspase-3 activity in order to determine if San A-amide-induced apoptosis is Caspase-dependent or independent manner. By shedding light on the downstream impact of Hsp90 inhibition, these data will provide valuable mechanistic information on a potential novel drug lead in the treatment of cancer.

**Session D-2**
**Oral Presentation: Public Health**  
Saturday, March 5, 2010, 8:00 am  
**Location: Calmecac**

**#366  8:00**
**An Eating Disorder Day Treatment Program Evaluation Using the EDI-3**

Coral Waters, Social Work (M)  
Sally Mathiesen, Social Work

A repeated-measures study was conducted to evaluate the effectiveness of a day treatment eating disorder program located in a metropolitan area of Southern California. The program included intensive outpatient and partial hospitalization treatment based in cognitive behavioral therapy. The 60 patient sample was comprised of civilians and military personnel with diagnoses of anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified. For the 37 patients who completed both pre-test and post-test, the post-treatment EDI-3 scores were significantly lower than the pre-treatment scores. Patients with bulimia nervosa significantly improved on all EDI-3 subscales over time, while patients with anorexia nervosa improved on all scales, but only significantly improved on the Drive for Thinness subscale. Age negatively correlated with improvement on the EDI-3 Eating Disorder Risk Composite across diagnoses. A significant limitation was the absence of data on frequency of eating disorder symptoms and changes in body mass index.

**#367  8:15**
**Validity of the Global Physical Activity Questionnaire (GPAQ) in Adult Latinas**

Nancy Espinoza, Public Health - Health Behavior (D)  
Elva Arredondo, Public Health

Background: Valid and reliable self-report measures of PA (PA) are needed to evaluate the impact of interventions aimed at increasing the levels of PA. However, few valid measures for assessing PA in Latino populations exist. Objective: The purpose of this study is to determine whether the GPAQ is a valid measure of PA among Latinas and to examine its sensitivity to intervention change. Intervention attendance and possible moderators on self-report accuracy, including education, acculturation and BMI, were also examined. Research Methods and Procedures: Baseline and post-intervention data were collected from 71 Latinas (mean age = 43.01; SD = 9.05) who participated in Caminando con Fe/Walking with Faith, a multilevel intervention promoting PA among church-going Latinas. Participants completed the GPAQ and were asked to wear the accelerometer for seven consecutive days at baseline and again six months later. Results: There were significant correlations at baseline between self-reported minutes per week of light chores and accelerometer-measured light activity (R = .33, p < .004), self-reported vigorous leisure time PA (LTPA) and accelerometer-measured vigorous PA (r = .52, p < .001), self-reported total vigorous PA and accelerometer-measured vigorous PA (r = .42, p < .001), and self-reported moderate-to-vigorous physical activity (MVPA) during leisure time and accelerometer-measured MVPA (r = .376, p < .002). Post-intervention there was a significant correlation between self-reported minutes per week of vigorous LTPA and accelerometer measured vigorous PA (r = .404, p < .001). Also, there were significant correlations in change scores (post intervention minus baseline) between self-reported vigorous LTPA and accelerometer-measured vigorous PA (r = .383, p < .003) and self-reported total vigorous PA and accelerometer measured vigorous PA (r = .363, p < .003). Education level and BMI were significant moderators of self-reported LTPA and accelerometer measured MVPA. Conclusions: The findings from this study suggest that the GPAQ may be useful for evaluating the effectiveness of programs aimed at increasing vigorous levels of PA among Latinas.
**#368 8:30**

*Combined Effects of Police Practices on the Drug-related Harms in Tijuana, Mexico*

Tyson Volkmann, Global Health (D)
Steffanie Strathdee, Global Health

Background: Influences in the risk environment at the micro-social level, such as policing practices, have been studied in relation to their impact on injection drug users (IDUs') behaviors, but outcomes have typically been studied singly, rather than simultaneously. We assessed the combined effect of police practices on multiple high risk behaviors among IDUs in Tijuana, Mexico.

Methods: Between 10/07 and 5/09, IDUs who had injected drugs within the last month were recruited via respondent-driven sampling and underwent questionnaires and testing for HIV, syphilis and TB. Clustered, repeated-measures logistic regression was used to simultaneously model five outcomes occurring as a result of police practices in the prior 6 months (i.e., rushed injections, receptive syringe sharing, places where drugs were bought or used, fear that police will interfere with drug use). Results: Of 703 IDUs, 84% were male; median age was 38 years. In the last six months, 15% were victims of police corruption; 27% reported receptive needle sharing. IDUs reported that police had led them to rush injections (3%), or affected where they bought (1%) or used drugs (1%) and 3% were very afraid that police would interfere with drug use. Factors independently associated with the combined effects of the 5 outcomes were: being arrested (AOR=2.21; 95% CI=1.70-2.88); front/back-loading (AOR=4.65; 95% CI=3.62-5.98); being homeless (AOR=1.91; 95% CI=1.37-2.66); perceiving decreases in drug purity (AOR=1.92; 95% CI=1.11-3.34); injecting more than once per day (AOR=2.37; 95% CI=1.70-3.29); having difficulty acquiring unused syringes (AOR=5.27; 95% CI=2.82-9.85); and using the needle exchange program (AOR=1.69; 95% CI=1.18-2.43). Conclusions: Policing practices were adversely associated with IDU risk behaviors and protective behaviors as well as other factors influencing the risk environment in Tijuana, suggesting that their effect on the risk of blood borne infections may be both direct and indirect.

**#369 8:45**

*Ethnic Disparities in Smoking among Girls and Young Women in China*

Sanghyuk Shin, Global Health (D)
Thomas Novotny, Graduate School of Public Health

Background: Racial and ethnic disparities in smoking have been documented in numerous settings worldwide. In China, it is unknown whether disparities in smoking exist between the ethnic Han majority and the 55 minority ethnic groups which comprise 8.4% of the population. The goal of this study was to determine whether ethnic disparities in smoking exist among young Chinese women. Methods: A cross-sectional survey was conducted in secondary schools and universities in rural and urban areas of six Chinese provinces during May to July 2008. At each school, female students ages 14 to 24 were asked to complete a standardized questionnaire which included items on demographics and smoking-related behavior, knowledge and attitude. The primary outcome was current smoking, defined as any smoking within 30 days prior to the survey. Multivariate log-binomial regression models were constructed to determine factors that may affect the smoking prevalence ratio (PR) between ethnic minority participants and Han participants. Results: Of the 10,998 (98.7%) participants with complete data for ethnicity and smoking status, 353 (3.2%) reported current smoking. Ethnic minority participants reported higher prevalence of smoking compared to Han participants in rural areas (7.3% vs. 1.8%; PR=4.2, 95% confidence interval [CI]=2.3–7.5), but not in urban areas (4.3% vs. 4.2%; PR=1.0, 95% CI=0.6–1.7). Ethnic minority participants were less likely than Han participants to report that they would refuse a cigarette offered by their best friend (72.8% vs. 78.1%, p=0.005), more likely to have heard of cigarette brands made for women (81.2% vs. 68.0%, p<0.001), and more likely to report that students should be allowed to smoke (39.7% vs. 28.7%, p<0.001). After adjusting for these factors, the prevalence ratio of current smoking among ethnic minority participants compared to Han participants in rural areas decreased but remained significantly greater than 1.0 (PR=1.9, 95% CI=1.2–3.2). Conclusion: Ethnic disparities in smoking were found among young Chinese women in rural areas but not in urban areas. Tobacco control efforts should address low refusal self-efficacy, high exposure to cigarettes made for women, and positive attitudes towards student smoking among young minority women in rural China.
#370  9:00

**Brief Intervention to Reduce Alcohol Use Among Men Who Have Sex with Men**

Julie Croff, Public Health (D)
John Clapp, Social Work

**Introduction:** Men who have sex with men (MSM) who abuse alcohol are at increased risk for unprotected sexual intercourse, which may lead to transmission of HIV. Although there is no definitive causal link between alcohol use and risky sexual behavior, the two behaviors are highly correlated.

**Design:** A randomized control trial was designed to test a brief alcohol intervention against an attention-placebo control intervention. A sample of 152 MSM were recruited over 13 weeks at a local gay bar. Sober bar patrons were recruited prior to entering the bar and asked to complete a brief assessment and receive feedback. Patrons were randomly assigned to receive feedback on their planned alcohol use or on their carbon footprint (attention-placebo control condition). This scripted feedback, based on the health belief model, was tailored to the individual through a brief assessment. Participants were asked to complete a brief survey and give a breath sample at exit from the bar. Participants were followed-up within one week to assess alcohol-related problems and sexual activity following the interview night.

**Findings:** Breath alcohol concentrations (BrAC) at exit from the bar were not significantly different between those in the experimental alcohol feedback condition and those in the attention-placebo control condition. Among participants receiving the experimental brief alcohol intervention, those categorized as high-risk for alcohol-related problems at entrance drank significantly less than planned as compared to participants categorized as low-risk for alcohol related problems ($F=13.9$, $p \leq 0.001$). Further, participants categorized as high-risk at entrance drove at a significantly lower rate than participants categorized as low-risk and at-risk ($X^2=8.9$, $p \leq 0.05$).

**Discussion:** This brief alcohol intervention did not significantly reduce BrAC at exit from the bar for the group as a whole. However, evidence indicates that this intervention was more appropriate for those who planned to drink at rates that would put them at higher risk of alcohol related problems as compared to those who were at low-risk of alcohol related problems.

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Session D-3

**Oral Presentation: Literacy, Bilingualism, Language Processing and Disorders**

Saturday, March 5, 2010, 8:00 am
Location: Council Chambers

#372  8:00

**Pennies, Piggy Banks, and Phonological Disorders: A Comparison of Progress Monitoring Techniques in Speech-Language Intervention**

Laura Foster, Speech Language and Hearing Sciences (M)
Sonja Pruitt, Speech Language and Hearing Sciences

Speech-language pathologists use client-specific data to establish abilities, determine goals, and monitor progress of their clients during the course of speech-language intervention. Data are generally kept by the clinician and progress shared with the client periodically when time- or criterion-based goals have been met. The present study examined whether actively involving the client in data collection and progress monitoring across treatment sessions affects client performance during intervention. It was proposed that clients tracking their own progress would make greater improvements in less time than those who were not involved. This hypothesis was tested during phonological intervention for children diagnosed with speech sound disorders. Five children between the ages of 4 and 6 years old served as participants. All of the participants were determined to have a phonological disorder according to standardized assessments and a thorough phonological probe. The intervention included a maximum of 19 treatment sessions and focused on production of three-element consonant clusters (e.g., 'str' and 'spl-').

We employed an alternating treatment design. After three training sessions, treatment alternated between sessions in which data was collected and monitored by the child with clinician assistance as needed and sessions in which data was collected and monitored by the clinician. Each child serviced as his or her own control. During the child-directed sessions, the child was given a token for each correct production of the targeted word as determined by the clinician. At the close of each session, the child counted the tokens and inputted the total into a spreadsheet, which created a graph of progress. The clinician kept this data and did not share it with the children during the clinician-directed sessions. Data collection is complete, and analyses are currently being completed. Results will provide insight into whether actively participating in data collection and progress monitoring has an impact on a child’s rate of progress across sessions. These results will have clinical implications for both intervention of phonological disorders and the role of progress monitoring in speech-language intervention as a whole.
#373 8:15

**Fast Mapping Abilities in Sequential Bilingual Children**

Janie Lai, Speech, Language, and Hearing Sciences (M)
Vera Gutierrez-Clellen, Speech Language and Hearing Sciences

During preschool, children are exposed to many new words which they must learn quickly and efficiently. Researchers have suggested that children may create 'fast maps,' or quick impressions of novel objects, after a brief one-time exposure. To date, there has been limited research describing the fast mapping abilities of sequential bilingual Spanish-English children. The goal of this preliminary study was to determine whether sequential bilingual preschool children obtained enough phonological or semantic information, after a brief one-time exposure, to identify novel objects (comprehension) and produce the novel label (expression). Fifteen native Spanish speaking preschoolers, ages 3;2 to 4;1, were presented with a novel word learning task conducted in English. The novel words used in this study were sixteen monosyllabic novel words used in previous research (Kan, 2008). The novel words followed English phonological rules and included frequently occurring phonemes in the English language. Novel and familiar words were presented only once in a play context, which was followed by immediate testing of word production (e.g., 'What is this?') and then, comprehension (e.g. 'Give Mr. Bear a noob.'). Results showed that Spanish English sequential bilingual children were able to accurately identify 21 percent of novel words receptively and two percent of the same novel words expressively. These findings support previous results of fast mapping abilities in Hmong English sequential bilingual preschoolers (Kan, 2008). These findings suggest that sequential bilingual children are able to acquire enough phonological and semantic information to accurately identify novel items. However, with regards to expressive tasks, these results suggest that Spanish English sequential bilingual children may have difficulties retrieving the phonological information to produce the novel words. Kan, P. F. (2008). *Novel word learning by sequential bilingual children: A longitudinal study* (Doctoral dissertation). University of Minnesota, Minneapolis, MN.

#374 8:30

**Exploring the Communication Patterns in Two Bilingual Dental Offices in Southern California**

Robert Franks, Spanish (M)
Claudia Angelelli, Spanish and Portuguese Language and Literature

Languages for Specific Purposes (LSP) can be used to assist businesses that hire and train bilingual employees. Currently there exists between language for specific purposes found in commercially available textbooks and language occurring in a natural setting. Therefore, there is a need to understand more about the communication and interaction that occurs in a specific work setting. In this thesis I conduct a qualitative study in a dental office to explore the communicative language patterns. Using a sociolinguistic lens that enables the observer to capture language as it naturally occurs, I studied two bilingual dental offices in the Southern California region. They were chosen because they serve a large Spanish speaking population. Bilingual dental office employees and Spanish-speaking dental patients were recruited. Communication was recorded and analyzed between the dental employees and the dental patients. My observations in the dental office showed that a dental employee needed background knowledge and language skills to work as a bilingual dental office employee. This thesis has practical implications at both the general and specific level. At the general level it has implications for language use and for the teaching and the learning of languages for specific purposes. At the specific level it has implications for dentists, dental office managers, and dental employees.

#375 8:45

**What Makes Reading so Difficult? Processing Orthographic and Semantic Information in the First to Fourth Grade**

Lara Polse, Language and Communicative Disorders (D)
Judy Reilly, Psychology

The “Simple View of Reading” (Gough & Tunmer, 1986) describes reading as the product of two skills: decoding (word recognition) and linguistic comprehension. While many studies have assessed how well decoding and linguistic comprehension predict reading performance, we know little about how and when these skills develop in children learning to read. In the current study, children in grades one through four were asked to identify the synonym of a target word (BOAT-SHIP), while ignoring any orthographic foils (BOAT-BOOT). Reaction time and accuracy results from the current study suggest that early readers are already skilled in orthographic processing, but tend to rely too heavily on orthographic information and ignore semantic information. Semantic processing skills, by contrast, appear to solidify in the older grades, where orthographic and semantic processing systems are used successfully in tandem. These results suggest that children learning to read do not struggle with the perceptual orthographic decoding skill, but rather with the more conceptual semantic comprehension skill. Consequently, the present study indicates that reading interventions that focus more on vocabulary and language development may be more efficacious for helping children who struggle with reading than those that focus on letter-sound correspondences and phonics.
#376  9:00  
*Bilingualism: Threat or Menace?*

Darin Woolpert, Language and Communicative Disorders (D)  
Dr. Judy Reilly, Psychology

The literacy problems of Spanish-English bilingual children in U.S. schools (currently 9% of the total student population) have been documented since the 1930’s. Early attempts to find solutions were confounded by a combination of faulty methodologies and prejudicial attitudes towards non-whites and bilinguals. Currently, U.S. bilinguals lag behind their monolingual peers throughout their academic careers and graduate reading at the 8th grade level. This performance is likely an overestimate, however, as they are also more likely to be held back a grade and to drop out of school. Evaluating the causes of the reading deficits of bilingual children is a necessary first step to addressing them. Models of reading generally fall into two categories: decoding-centered and component-centered. The former emphasize phonological skills, such as phonemic awareness, as central to reading success; the latter include phonological and non-phonological skills, with an emphasis on comprehension. A decoding-centered model would suggest that reading difficulties are tied to phonological problems, impeding decoding. Component-centered models predict that a limited vocabulary leads to comprehension problems, either in conjunction with or independently of decoding problems. Two studies explored the nature of bilinguals’ reading problems. In the first study, 34 bilingual kindergarten to second grade students were given standardized tests of decoding and vocabulary at the beginning and end of the school year. In the second, cross-sectional, study, 41 bilingual and 33 monolingual kindergarten to second grade students were given the same tests at the end of the school year. The bilingual students made significant improvements in decoding over the course of the school year, but not in vocabulary. Likewise, the bilingual children were not significantly different from the monolingual children on decoding measures but were significantly below the monolingual children in the vocabulary measures. These results suggest that it is comprehension, not decoding, difficulties that underpin the literacy problems of bilingual children. The longitudinal data suggest that schools are successful in teaching decoding to children and that it can be learned even when comprehension is limited. The results also indicate that schools should include vocabulary-based interventions in their literacy instruction.”

#377  9:15  
*The Eyes Have It*

Roberto Gutierrez, Language and Communicative Disorders (D)  
Lewis Shapiro, Speech, Language, and Hearing Sciences

Many researchers have shown that bilingual individuals have multitasking advantages over their monolingual peers (Costa et al. 2007, Bialystok et al. In press.) Therefore, to eliminate the potential confound of a secondary task in psycholinguistic research we have rejuvenated and old methodology with new technology to provide a real-time, noninvasive, measure of cognitive processing load. In the early 1900’s Bumke noted the link between cognitive processing load and pupil diameter. In 1982 Beatty reaffirmed the link between processing loads and pupil diameter (Beatty 1982). Many of the previous studies that have involved processing loads and pupillometry have looked at pupil changes over intervals of time measured in seconds. Advances in technology allow us to take accurate measures with much more acuity. Using a Tobii T60, a self contained eye tracker, we are able to take pupil diameter measurements at a rate of 60Hz or every 17ms. The first goal of this study is to replicate the results of a behavioral study in monolingual college aged adults using a new apparatus/paradigm. The validity of the apparatus/tool was confirmed by showing a significant increase in pupil diameter in ungrammatical contexts. To gain insight into online processing demands we observed pupil diameter during sentence processing of grammatical and ungrammatical sentences and have been able to provide a real-time indicator of processing load increase. Furthermore, the time at which the processing load increases in the ungrammatical context is dependent on sentence constructions and the type of grammatical violation. Now that we have created a baseline with the monolingual English group we intend to collect pupillary responses from bilinguals to gain insight into real-time sentence processing demands without the confounds of a secondary task.

#378  9:30  
*Effects of Semantics or Speaker Intent on Speech Motor Performance in Adults*

Dorothy Yang, Language and Communicative Disorders (D)  
Ignatius Nip, Speech, Language, and Hearing Sciences

Previous studies have demonstrated that sentence structure affects the way speakers move their lips and jaw, suggesting that higher-order linguistic processes influence speech motor execution. However, it is unclear whether semantics (meaning) similarly affect speech motor performance. This pilot study presented ambiguous idioms (target phrases) placed in neutral sentence contexts (target sentences) to five normal, neurologically-intact adults. Because the idioms had two possible meanings, two bias lists were created: one to elicit a literal interpretation and the other a figurative interpretation. Each of the two lists contained
two repetitions of every target phrase, for a total of four repetitions of each target phrase. Target sentences were preceded by two sentences which set up either the literal interpretation or the figurative interpretation of the target phrase. For example, for the literal condition, a target sentence such as “Bob kicked the bucket” would be preceded by “Tom crushed the picture” and “Sam kicked the picture.” Contrastively, for the figurative condition, the same target sentence would be preceded by “Bob suffered from meningitis” and “Bob failed to recover.” For each list, the two repetitions of each target sentence, together with its preceding sentences, were embedded within 98 filler sentences. Sentences were presented one at a time to participants on a projector screen, and participants were instructed to read each sentence aloud as it appeared on the screen while a motion capture system recorded their articulatory lip and jaw movements. To distract the participants from discerning that some sentences had ambiguous meanings, participants were instructed to read filler sentences written in blue backwards. Each repetition of the target phrase was parsed. Zero-lag cross-correlations were performed to determine how similar the movement traces of each repetition were to the other repetitions in the same condition. In addition, movement characteristics of the jaw and lips (i.e., peak movement speed and movement duration) will be determined. Statistical analyses will determine if the literal and figurative condition differ in speech movement pattern stability or in the speech movement characteristics described above. Such information is important in helping us understand the interaction between speaker intent and speech motor performance.

Session D-4
Oral Presentation: Latino Identity and Community
Saturday, March 5, 2010, 8:00 am
Location: Casa Real

#379 8:00
Chicana and Chicano Cultural Citizenship in Santa Barbara, California
Adela Lua, Anthropology (U)
Isidro Ortiz, Chicana & Chicano Studies

This research is an initial investigation of Chicana/o cultural citizenship in Santa Barbara, California. The study explores a hypothesis advanced by the cultural citizenship project regarding the responses of subordinated communities. Historical research and ethnographic methods were employed in the exploration. The cultural practices of claiming space and asserting rights are emphasized in the investigation. Santa Barbara is the geographical focus because it is a city where Chicana/os experienced subordination. Moreover, Chicana/o cultural citizenship in the city has not been studied by scholars. The study seeks to contribute to not only the literature on Chicana/o cultural citizenship but community studies and usage of space. The findings of the study provide empirical support for the hypothesis of concern.

#380 8:15

Linda Munoz, Chicana and Chicano Studies (U)
Adelaida R. Del Castillo, Chicana and Chicano Studies

Approaches to critical pedagogy have been implemented for more than a generation as part of innovative educational approaches. Ontological concerns over students’ basic human rights and the potential of cultural capital raise new questions about the importance of voice and the implications of silencing. Through the consideration of three case studies this paper finds that when the voice becomes the center of learning both students and teachers benefit. As a result of critical pedagogy, students become actively engaged in knowledge construction and exert educational agency and teachers learn to reflect and think critically about their biases and misconceptions of the other. More importantly, the literature suggests that the development of voice results in student identity re-creation and self-knowledge. This research project explores the ways in which critical pedagogy can be used as an educational tool in the development of voice and agency among Latino students.

#381 8:30
Invisible Students and Marginalized Identities: The Articulation of Identity of Mixteco Youth in San Diego, California

Ana Gabriela Kovats, Latin American Studies (M)
Ramona Perez in Latin American Studies

Migration has impacted all levels of Mixteco life, creating economic and social changes that have had an effect on the negotiation of their indigenous identity. With the permanent establishment of Mixteco communities in the U.S., Mixteco children grow up in an environment very different to that of their parents. They attend school, learn English, and lose their native language in the process. The lack of cultural and linguistic understanding on behalf of the school system has powerful effects on
the development of a child’s identity but it is also the historical discrimination against indigenous people in Mexico that pervades across the border and shapes the identity of Mixteco youth. Although there is much research about many culturally diverse groups in the U.S. public school system, including Mexican and Chicano students, this research distinguishes the experiences of indigenous Mexican children attending school and how they also must negotiate their identity against the backdrop of an already existing Mexican mestizo identity. My research emerges from qualitative interviews, conversations, and participant observations with Mixteco families and it is an attempt to articulate the experiences of Mixteco youth growing up in San Diego, California.

#382  8:45

Globalization and Mexican Immigrant Youth at the U.S.-Mexico Border

Samuel Cortez, Geography (M)
Stuart Aitken, Geography

The North American Free Trade Agreement (NAFTA) is one of the most direct manifestations of globalization in the U.S.-Mexico border. This study examines how global transformations such as NAFTA affect immigrant youth in the Imperial and Mexicali Valleys. The U.S.-Mexico border region is the subject of many studies, however very few focus on globalization and its impact on young people within the context of geography. By using qualitative methodologies such as interviews and focus groups of high school/preparatoria students on both sides of the border this study examines how these young people make decisions concerning work and education. In some instances young people choose to become wage earners to help their parents while in other situations they decide to continue their education to earn a college degree. By documenting young people’s voices they can be empowered to provide new insights about socio-spatial relations of the border. The following research questions are addressed: (1) How do young people decide whether to work or to go to school to live the lifestyle they desire in the future? (2) What educational and occupational options do young people have where they live? (3) How are these options tied to the condition of the border economy created by globalization, and does it hinder or enhance the future well-being of young people? (4) Are young people on both sides of the border impacted equally? The result is that some young people go to extraordinary efforts to attend school, often to the consternation of school officials and with little regard to international boundaries. Other young people drop-out of school and fall prey to labor abuse, neglect and the prospect of limited opportunities to function in the twenty-first century.

#383  9:00

Tomate esta botella conmigo y en el ultimo trago....me besas Queer Readings through the Passion and Desire of Chavela Vargas

Gibran Guido, Chicana/o Studies (M)
Adelaida Del Castillo, Chicana/o Studies

In this paper I discuss the intersection of music, memory and performance by focusing attention on the Ranchera genre. I allow for the reading of a queer representation of Ranchera music by addressing the life of Chavela Vargas (1917-), renowned Mexican/Costa Rican musician. Chavela Vargas began her musical career in first half of the twentieth century and since then has contributed a lifetime of musical achievement that has not been fully recognized by academia. Chavela has recorded more than eighty albums and has barely begun to get the worldwide acclaim of musical enthusiasts and scholars, most of whom have ignored her queer intimate passion within a heterosexual context. Chavela is currently idolized as a queer Latina icon and historical representative of queer subjectivity. Chavela Vargas set in place a queer connotative space within the traditionally dominant heterosexual genre of Ranchera music. Chavela has broken ground as a self-identified lesbian. Her identity, performance and interpretation make her unique in the musical genre. In this paper I look at specific aspects of Chavela’s life and explore the ways in which her sexuality and defiant gendered performances helped to incorporate a queer figure in Ranchera music. In doing so, I look to find answers to several questions: How does Chavela Vargas perform masculinity through her butch lesbian identity? How has that performance changed over time? And lastly, how has her transnational and multifaceted persona redefined traditional notions of gender, masculinity and sexuality?

#384  9:15

The 2009 Election in Chile: Why did Piñera Win?

Kenneth Bunker, Political Science (M)
Richard Hofstetter, Political Science

Objective. The purpose of this study is to analyze the results of the 2009 presidential election in Chile. Framework. I use the variables suggested by the Columbia, Michigan and rational choice schools to frame voting behavior. Methods. I analyze data from the CEP national opinion survey to explore the effect of short and long-term variables on voter preferences. Results. Among the short-term variables I find that only presidential approval has a statistically significant relation. Among the long-term variables I find that socioeconomic status and age are crucial predictors. I also find that consistent with theory self-identification, on a
Predicting Stock Success: Company Name Complexity, Processing Fluency, and Consumer Confidence

Carly Hennessy, Psychology (U)
David Armor, Psychology

In an influential paper, Alter and Oppenheimer (2006) report that investors are biased by the phonetic complexity of a stock company’s name, expecting that simply-named companies will outperform complexly-named companies. They interpreted this finding in terms of processing fluency, arguing that (a) complex names are disfluent, and thus more difficult to process than simple names, (b) disfluency is interpreted negatively, leading to more negative performance evaluations, and (c) inferences based on processing fluency (such as of a company’s familiarity) influence performance predictions. However, Alter and Oppenheimer did not test these hypotheses directly, leaving their interpretation open to question. The aims of the present studies are (1) to provide direct tests of the processing fluency interpretation and (2) to examine an alternative hypothesis: that the name-complexity effect may be explained by people’s beliefs about the market benefits of simple names. Study 1 tested the name-complexity and processing-fluency hypotheses by asking participants (N=95) to estimate the future performance of 14 fictitious company names: half were simple (e.g., Barnings) and half were complex (e.g., Xagibdan). In the control condition, which closely resembled Alter and Oppenheimer’s (2006) experiment, the effects of name complexity were replicated: Participants predicted that simply-named companies (M=7.2%) would significantly outperform complexly-named companies (M=4.6%). However, results from three additional conditions failed to support fluency-based predictions: (1) drawing attention to the source of disfluency (i.e., pronounceability) did not eliminate the name complexity effect, (2) inducing participants to attribute disfluency to a lack of familiarity (a hypothesized mediator) did not yield evidence of mediation, and (3) altering the implications of disfluency (i.e., that complexly-named companies may be more creative) did not reverse the name complexity effect. In Study 2, the magnitude of the name complexity effect was found to vary in proportion to participants’ prior belief in the relevance of company name complexity to stock performance. Study 3 established the causal effect of these beliefs experimentally. Conclusion: Results of these studies revealed a reliable name complexity effect, but failed to support a fluency-based interpretation. Name complexity thus influences stock valuation, but this effect is not explained by processing fluency. Implications will be discussed.

Ratings of Relationship Quality Reflect Internalized Homosexual Prejudice

Tina Mayes, Psychology (U)
David Armor, Psychology

When this study was conducted, Proposition 8 had recently passed, banning same-sex marriage in California. This resulted in mass controversy concerning gay marriage and whether same-sex couples were being denied marriage rights because of perceived differences in their ability to maintain long-term relationships (Brumbaugh & Sanchez, 2008). Research by Herek demonstrated negative attitudes of gay men and lesbians, including perceived inabilities to rear children or maintain monogamous relationships, indicating a discomfort with long-term same-sex relationships (2002). Young adults surveyed by Williams and Jacoby rated people with premarital same-sex sexual experiences as more likely to cheat and to be emotionally unstable compared to those that had premarital opposite-sex sexual experiences, making them less appealing as a potential marriage partner (1989). San Diego State University students and alumni completed an anonymous survey evaluating whether people’s ratings of relationship quality were different depending on whether the couple were heterosexual, lesbian, or gay male, and whether those ratings were influenced by the couple’s intent to marry or merely dating (n = 167). The surveys consisted of a description of a couple followed by a set of 7 questions concerning the overall perceived relationship quality of that particular couple. Descriptions of the couples were identical except for manipulated names which inferred whether the couple was lesbian, gay, or
heterosexual. Each participant read a description of one couple with the couple’s names, intentions (to marry or date), how they met, their occupations, and hobbies. The results demonstrated consistent rating of gay men as lacking qualities needed to maintain monogamous relationships compared to both lesbians and opposite-sex couples whether it was stated that the couple hoped to marry in the near future or continue dating, alluding to the tendency for people to judge a couple’s relationship quality based in great part on sexual orientation. Although not statistically significant, a trend of higher positive ratings of lesbian couples compared to heterosexual couples appeared. Despite 67% of the sample voting “No” on California Proposition 8, meaning they support same-sex marriage, ratings of gay male relationship quality were significantly lower compared to lesbian and opposite-sex relationships.

#387 8:30

A Shroud of Black: Exploring and Dispelling Stereotypes of the Goth Subculture in Southern California

Heather Kingston, Management (U)
Frederick Conway, Anthropology

My research was done as an ethnographic exploration on the Goth subculture in Southern California, conducted for an American Cultures class (Anth 444). The methods used were participant observation in a Goth nightclub and open interviews with three individuals identifying with the culture. The research found that there is no standard Goth lifestyle, but several archetypes with much variation. These include but are not limited to Romantic Goths: Goths interested in the sensual and mysteriousness of life as presented by Victorian literature, and Cyber Goths: Goths dressed conspicuously in bright neon colors and interested in futurism/technology and dancing to techno music. Some common threads between Goths are the music they listen to, a fascination with morbidity, and shared worldviews. However, the main commonality is an inability to fit into average peer groups for varying reasons. Social obstacles are why most Goths have chosen to adopt this lifestyle. From my interviews, I determined that two participants in my research felt that being Goth is a state of mind derived from the notion that norms require an upset to reevaluate the reasons for the status quo. Only one of those participants felt that the Goth culture was part of their identity. The last participant simply felt that the culture was a less formal outlet for frustrations with popular society. This research dispelled common held stereotypes regarding Goths—that they are antisocial and unhappy Satanists obsessed with death and scaring “normal” people. Conducting this research taught me that the Goth subculture provides the shunned and oppressed with a more accepting social climate and members of this culture can make the rest of us view our societal norms from a different direction.

#388 8:45

Effects of Social Influence: Is Beauty in the Eye of the Conformer?

Bahareh Soltani, Psychology (U)
David Armor, Psychology

This study considers the various influences on our perceptions of what is considered attractive. Participants rated the attractiveness of faces in an experiment that manipulated the illusory ratings of other SDSU students and the definition of attractiveness as either an objective (commonly agreed upon) or subjective (“in the eye of the beholder”) quality. Hypotheses predicted that students would be influenced by the opinions of their peers, and this would differ as a function of whether participants were prompted to view attractiveness as objective or subjective. It was thought that those exposed to the objective condition would be more interested in how others defined attractiveness and those exposed to the subjective condition would be less interested. Previous research supports the hypothesis that women will be more influenced by peers than their male counterparts. Results revealed that participants were significantly influenced by the supposed ratings made by other SDSU students. Counter to hypotheses, participants’ ratings varied more greatly in the subjective condition than in the objective condition. Unlike previous research, men and women were just as likely to be influenced by the ratings of others. Because no previous research has been done that addresses the idea of social influence and definitions of attractiveness simultaneously, implications are vast. Changes in societal norms and the individualistic culture this study was conducted in may play a substantial role in the findings for gender differences and differences in the perception of what defines attractiveness.

#389 9:00

Evaluating Prescriptions for Optimism: Ideal Predictions are Often (but not Always) Optimistic

Sara Andrews, Psychology (M)
David Armor, Psychology

Decades of research has shown optimism to be associated with positive outcomes in many domains. Nonetheless, there are two common-sense concerns about the possible downsides of optimism: (1) that people may sometimes be too optimistic, and (2) that while optimism may be advantageous in some situations, it may be disadvantageous in others. It is not clear whether individual differences in how people respond to these situations relates to adjustment: is there are best way to be optimistic? Drawing from recent work on prescribed optimism (Armor, Massey, & Sackett, 2008), participants (N = 347) were randomly
assigned either to describe the predictions they would make or to prescribe predictions for others in each of 30 intentionally diverse situations. Responses were recorded on a nine-point scale ranging from -4 (extremely pessimistic) to +4 (extremely optimistic), with a midpoint of 0 (accurate). As a measure of overall adjustment, participants were also asked to complete Deiner’s Satisfaction with Life Scale. Analyses revealed a significant bias toward optimism in both conditions, $F(1, 345) = 260.3, p < .001$, and found that participants prescribed significantly more optimism ($M = 0.99$) than participants reported they would actually feel ($M = 0.45$), $F(1, 345) = 37.78, p < .001$. Thus, although participants acknowledged that their described predictions tend to be optimistically biased, when compared to the prescribed ideals, we find that those same predictions may not be optimistic enough. Next, a 2 (condition: prescribed vs. described) by 30 (situation) mixed-design ANOVA revealed a main effect of situation, $F(29, 9715) = 214.0, p < .001$, suggesting that participants responded in consistent ways across situations (i.e., some situations reliably evoke optimism while others reliably evoked pessimism). Finally, average optimism and situational sensitivity were found to independently predict an increase in adjustment, $\beta = .32, t(170) = 3.91, p < .001$ and $\beta = .18, t(170) = 1.99, p = .05$, whereas deviation from the prescribed ideal predicted a decrease in adjustment, $\beta = -.24, t(170) = 2.34, p = .02$. This suggests that the relationship between optimism and adjustment may be more complex than current measures demonstrate. Implications are discussed.

#390 9:15

The Conceptual Structure of Psychological Closeness to Nature

Wallis Levin, Psychology (M)
Sara Unsworth, Psychology

Previous research has shown that there are cultural differences in psychological closeness to nature (i.e., thinking of humans as a part of nature rather than apart from nature) and that some of this variation is related to the likelihood to tell personal stories about nature. However, little is known about the conceptual structure of psychological closeness to nature. The present research examined this construct in greater depth. Participants used an open-ended nature scene task to display mental models of nature, and comparisons were made between participants who included humans in the scene vs. participants who excluded humans from the scene. Some participants completed the nature scene task after listening to stories about nature to determine whether these stories influenced the structure of participants’ mental models. Interesting patterns emerged for discourse related to utility associated with nature, personal sentiment for species, and anthropomorphism.

Session D-6
Oral Presentation: Physics
Saturday, March 5, 2010, 8:00 am
Location: Presidential Suite

#391 8:00
Free Space Optical Communication

Whitley Greene, Physics (U)
Matt Anderson, Physics

Free space optical communication is the method of sending data from one point to another along a line of sight by use of a modulated beam of visible or infrared light. First developed by the military and NASA, free space optical communication has been available for approximately the last three decades. Similar to fiber optic communication in that a modulated laser or light emitting diode (LED) is used to encode data, free space communication does not need a fiber for transmission. Rather, the light is collimated and transmitted through space. As part of the Physics 406 Optics class, the students were asked to utilize free space optical communication to send a Morse code message from the roof of the Physics Building to roof of the GMCS Building approximately 60 meters away. A Helium Neon laser was co-aligned with a tunable infrared laser, which was used to send the signal. The lasers were first co-aligned on an optical table then the system was moved to a portable breadboard to perform the experiment in the hallway. Using a handheld shutter, the light was modulated to send a Morse code message. At the other end of the hallway, a detector was connected to an oscilloscope where the modulated light was received and decoded. The experiment was performed twice in the hall, once at a distance of 30 meters, then again at a distance of 60 meters, before the whole system was taken to the roof of the buildings. The Morse code messages were then sent from one building to another with up to a 97% success rate. These results illustrates that free space communication is a very effective was to encode and send information over large distances. Results from this research could further be applied to technologies such as high speed and large bandwidth internet access.
Generating Optical Vortices Using a Femtosecond Laser and Spatial Light Modulator
Antonio Talamantes, Physics (U)
Matt Anderson, Physics

Since the first in-depth study of optical vortices in the 1970's there has been much focus in the study of the applications and behavior of them. Optical vortices have been applied to the fields of quantum computing, cryptography, nanolithography, microscopy, and optical tweezers. Using optical vortices to trap matter within them is particularly interesting due to the fact that the beam carries angular momentum and will cause the matter within the optical vortex to gain angular momentum itself. In our research, we use a Titanium-Sapphire laser with a liquid-crystal spatial light modulator to experimentally generate optical vortices. Our most recent research will be discussed.

A Three Dimensional Concurrent Solver for the Schroedinger Equation
Brendan Fahy, Computational Science (M)
Michael Bromley, Physics

Modelling the dynamics of quantum mechanical systems requires massive classical computational resources. For modern computer architectures, optimized algorithms should be able to run many computations concurrently. Our solver for the non-linear Schroedinger equation is based on a split-operator Crank-Nicolson finite-differencing method. We have explored schemes for the parallelization of these algorithms to model the dynamics of ultracold atoms (ie. a Bose-Einstein condensate). We will present benchmarks of parallelization schemes and how the performance of the calculations was optimized. We will also present 3-D models of the coupled dynamics between laser beams and Bose-Einstein condensates that have been limited to 2-D in the recent past.

Thermal and Electrical Properties of Ruthenates
Nichelle Worthington, Physics (M)
Milton Torkachvili, Physics

Loosely bound electrons in metals participate in both the conduction of thermal and electrical energy. It is therefore plausible that there is a correlation between the thermal and electrical conductivities in materials. Pioneering experiments done by Wiedemann and Franz, dating back to 1853, nearly 70 years before the quantum theory for the electrical and thermal conductivity in solids was developed, suggested that indeed the ration between the thermal conductivity (\(\lambda\)) and the electrical conductivity (\(\sigma\)), \(\lambda/\sigma\), was linearly proportional to the temperature in most metals. A particularly interesting case in superconducting materials is when the electrical conductivity becomes infinitely large, the phonon thermal conductivity increases while the electronic thermal conductivity vanishes rapidly. In this work, we studied the correlation between the thermal and electrical conductivity in superconducting RuSr2GdCu2O8-type compounds. This compound first orders magnetically with \(T_n \sim 133K\) and becomes superconductive \(T_c \sim 50K\). As iron is partially substituted for copper, the value of \(T_c\) drops at a very fast rate, effecting the \(\lambda/\sigma\) ratio.

Optical Excitations in Positronic Atoms
Lucas Cota, physics (M)
Michael Bromley, Physics

The dipole transitions of positronic atoms (atoms that stably bind with positrons) are being investigated using configuration interaction (CI) calculations. Even with the use of CI calculations and iterative methods the study of positronic atoms towards the complete basis set limit uses large amounts of computational resources. Using parallelization with the LAPACK libraries combined with iterative methods we have removed some of the computational limitations in studying positronic atoms. Knowledge of these dipole transitions is an important step in determining transition rates, which will in turn aid in future experiments to measure the characteristics of positronic atoms.

On the Long-range Molecular Interactions between Two Atoms
Julia Rossi, Physics (M)
Michael Bromley, Physics

The long-range interactions between atoms and molecules dominate their lowtemperature collisions. The electronic interaction between the charge distributions of two heteronuclear atoms can be expressed in inverse powers of \(R\), the internuclear distance along with London/van der Waals coefficients such as \(C_6\), \(C_8\), etc. Our research is aimed at obtaining general expressions for these molecular coefficients rewritten solely in terms of the atomic static and tensor polarizabilities at imaginary frequencies. These expressions are easier to calculate and thus are useful for computing the long-range dispersion interactions. From these calculations we can represent the long-range dispersion interactions between two atoms, and in the future between atoms colliding with \(H_2\) and other molecules.
Session D-7
Oral Presentation: Health and Fitness
Saturday, March 5, 2010, 8:00 am
Location: Quetzalcoatl A

#398 8:00
The Importance of Communication in Patient Care
Kai Mercado, Communication (U)
Wayne Beach, Communication

Communication has long been forgotten in the medical field. Many years ago, a doctor had to rely mainly on interpersonal skills due to a lack in technological advancement, and could sometimes offer no more than “compassion, hope, and an effective bedside manner” (Krupat, 1986, p. 23). The lack of compassion and hope into today’s medical arena is lacking profusely. Only recently have doctors and medical professionals began to realize the importance of successful communication. The relationship built between patients and doctors can greatly improve the level of care received by the patient. Benefits to a doctor being able to effectively communicate to patients, and patient’s loved one are endless. In order for the medical field to excel in the future doctors must develop the skills to effectively communicate with their patients. As Levine (2004) states in his article, Tell the Doctor All Your Problems, “if patients believe they are in a good relationship with their doctors, there is a strong chance their health will benefit”. As a business whose goal is to heal the sick, it would make sense to invest their time in communication skills, when it leads to an increase in health for the patient. Doctors who address the patient’s emotional as well as physical needs, will help themselves as well as others. This paper will take a closer look at a specific interview between a patient and doctor, and analyze the communication patterns used. The analyzing is key to the development of theories regarding communication used by doctors and cancer patients.

#399 8:15
Individual and Family Level Influences on Pre-adolescent Latinas’ Physical Activity
Sarah Fredrickson, Public Health (U)
Elva Arredondo, Public Health

Obesity rates in the United States have been steadily increasing during the past few decades, with significant increases being noted among Latina adolescents. Consistent with this pattern, the physical activity rates in Latina adolescents has steadily decreased. Interventions promoting physical activity among preadolescents may help to establish healthy habits early in youth development, thereby reducing the risk of gaining weight. Additionally, studies have shown teenagers who participate regularly in physical activity during their youth often continue the behavior into adulthood. The purpose of this study is to: 1) understand how parent and youth factors influence the physical activity of pre-adolescent Latina girls and 2) inform the development of a family based program to increase the physical activity levels of pre-adolescent girls in south San Diego. This study draws on quantitative and qualitative data obtained via a focus group and survey collected from pre-adolescent Latina youth and their mothers living in South Bay.

#400 8:30
The Effects of Sleep Deprivation on Emotional Intelligence and Moral Judgment
Tracey Slonim, Psychology (U)
Sean Drummond, Neuropsychology

According to the American Academy of Sleep Medicine (AASM), “about one in five adults fail to get enough sleep.” Although many side effects of sleep deprivation have been studied extensively, the effects of sleep deprivation on emotional intelligence and moral judgment have hardly been evaluated. Sleep deprivation (in the context of my research) is defined as restricting a participant to less than seven to eight hours of sleep per night. In order to exaggerate the side affects acquired from sleep deprivation, this study sleep deprives participants for thirty-six hours. This is called total sleep deprivation (TSD). Another, more realistic way of showing the side affects from sleep deprivation is to restrict a participant’s sleep to four hours per night, four nights in a row. This is called partial sleep deprivation (PSD). My research will examine the relationship between performance on the Emotional Quotient Inventory (EQ-I) and the Moral Judgment Task (MJT). The MJT and EQ-I will also be analyzed at baseline (before PSD or TSD), and after PSD or TSD to compare the difference in performance.

#401 8:45
Sex and Happiness among Brazilian Migrants in Metropolitan Boston
Melissa Gern, Nursing (U)
Enrico Marcelli, Sociology

Like income, research investigating the relationship between sex and happiness intimates a curvilinear relationship – more is better but only up to a point. Specifically, on average, having more sex with one partner is positively associated with being happier. Research also suggests that self-reported happiness is positively associated with long-term physical health and longevity, yet only
recently have scholars begun to investigate factors influencing happiness. We employ 2007 Harvard-UMASS Boston Metropolitan Immigrant Health and Legal Status Survey (BM-IHLSS) data to investigate the relationship between sexual activity and happiness among Brazilian migrant adults. We hypothesize that increased sexual activity with one partner is positively associated with happiness. Approximately 30 percent of foreign-born Brazilian adults residing in metropolitan Boston in 2007 reported having been very happy, two-thirds claimed to have had sex at least once in the year prior to being interviewed, and approximately 90 percent of those who were sexually active reported having had only one partner. Although the number of partners and number of times one had sex were not estimated to have influenced the probability that Brazilian adults were very happy, logistic regression results suggest that having graduated from college and having been satisfied with one’s sex life did. We discuss the implications of these results, as well as those generated separately for men and women, in a concluding section.

Religious Behavior and Happiness among Brazilian Migrants in Metropolitan Boston

Fatima Adel, Biology (U)
Enrico Marcelli, Sociology

Although self-reported happiness has been estimated to be socially contagious and negatively associated with several leading causes of death in the United States, and the number of foreign-born U.S. residents continues to rise, very few studies have investigated the sociocultural sources of subjective well-being among immigrants. We hypothesize that religious participation in general is positively, Catholic religious participation is positively, and Protestant religious participation is negatively, associated with migrant happiness. To test these two hypotheses we employ the 2007 Harvard-UMASS Boston Metropolitan Immigrant Health and Legal Status Survey (BM-IHLSS), a probability household sample survey of approximately 300 foreign-born adult Brazilians. Approximately 30 percent of Brazilian adults (mean age of 34 years and 54 percent of whom were male) reported being very happy, and 80 percent reported having participated in at least one religious event in the year prior to the BM-IHLSS. Almost half were Catholic (47 percent), slightly more than one-third (37 percent) were Protestant, and although regression results suggest that church attendance in general was not associated with happiness among Brazilian migrants, contrary to our expectations, among Protestants it was. We conclude by discussing implications for migrant happiness and integration in the United States.

The Influence of Household Environment and Social Capital on Sleep Quality among Immigrant Adults in Metropolitan Boston

Kaitlyn Hill, Chemistry (U)
Enrico Marcelli, Sociology

Research in social epidemiology and health economics suggests that various domains of life – such as household environment and friendship networks – may influence individual health behaviors. In this paper, I analyze new data (N=600) from the 2007 Boston Metropolitan Immigrant Health and Legal Status Survey (BM-IHLSS) to investigate how household environmental factors such as number of household members, sleeping arrangements, household noise levels, and whether anyone in the house smokes has influenced the likelihood that a foreign-born Brazilian or Dominican adult experienced poor sleep during the month prior to being interviewed. I will also estimate how having engaged in reciprocal exchange with individuals in a migrant’s social network or having participated in various civic groups influenced having experienced poor sleep. I hypothesize that (1) residing in a healthier household or (2) having higher levels of interpersonal or civic group engagement will be negatively associated with poor sleep. In short, residing in a healthier home or having more frequent social interaction is expected to result in a higher quality of sleep. Importantly, I use logistic regression techniques to control for other factors that may influence sleep, further categorizing these factors into six groups: (1) individual biological characteristics, (2) individual socioeconomic status behaviors, (3) individual health behaviors, (4) household environment, (5) neighborhood context, and (6) social capital. Additionally, the BM-IHLSS data were collected between June and September 2007 as part of a community-based statistical survey project by way of interviews and questionnaires. Approximately 50 foreign-born students and other members of these migrant communities interviewed respondents in their homes (50 percent of respondents were male 50 percent were female). However, with regard to legal status, 71 (Brazilian) and 8.1 (Dominican) percent were unauthorized immigrants. Given that little data has been collected on these two economically influential groups, the Brazilian and Dominican migrant communities became ideal populations to investigate. Results suggest that both neighborhood environment and social capital influence how well Brazilian and Dominican migrants sleep. We discuss what these findings imply for improving sleep among migrants residing in the United States with various proportions of unauthorized migrants.
#404 9:30

**Neighborhood Environment, Proximity to Medical Care, and the Self-reported Health of Brazilian Immigrants**

William Bredemeyer, Geography (M)
Enrico Marcelli, Sociology

I investigate if living in a disordered neighborhood and having different levels of spatial proximity to health resources are associated with self-reported health by using a socio-epidemiological approach. Social epidemiological models of health suggest that individual biology, social and physical environment, and access to medical care are linked with health directly and indirectly through biological, psychological, and behavioral response. I hypothesize that living in areas with more spatial proximity to health resources or in a less disordered neighborhood will be associated with higher chances of reporting very good or excellent health. Data are from the 2007 Boston Metropolitan Immigrant Health and Legal Status Survey, which consisted of a household probability sample of 307 Brazilian migrants who resided in ten randomly selected Boston metropolitan census tracts. Spatial proximity to medical resources was based on census block centroids and community clinic and hospital address location information from the state of Massachusetts and the National Center for Charitable Statistics. Residents of neighborhoods that have closer spatial proximity to medical resources and those that rate their neighborhoods as being good or excellent places to live had higher probabilities of reporting very good or excellent health. I find that the health benefit of proximity to medical resources is dependent on the service area for the medical care provider and is partially mediated by health-related behaviors such as exercise and smoking. Neighborhood physical or social problems become harmful to health when they are severe enough as a whole to worsen the perception of neighborhood quality to low levels, with the exception of high levels of noise being independently detrimental to health. This research shows that the neighborhood an immigrant lives in is associated with the immigrant’s self-reported health.

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#405 8:00

**Experimental and Theoretical Modeling of Mitochondrial Inner Membrane Conformation: Electron Microscope Tomography and Thermodynamics**

Mariam Ghochani, Computational Sciences/Physics (M)
Arlette Baljon, Education

Electron tomograms have revealed that in normal mitochondria cristae membrane self-assembles into a complex structure that contains both flat lamellar and tubular components that are connected to the inner boundary membrane through cristal junctions. This structure is believed to be essential to the proper functioning of mitochondria. To better understand the underlying features of this structure, we propose a free energy model for this configuration in an effort to use the observable geometrical features to predict thermodynamic properties of the system such as surface tension and pressure difference that are not directly observable. The model assumes that mechanical forces act on the membrane, which we believe to be exerted by proteins. To that end, a set of geometric measurements from the structural features of mitochondria were obtained. Structural features were measured from 3D electron tomograms of mitochondria. These tomograms were obtained by collecting tilt series of 300nm sections of mitochondria, aligning the projection images of each tilt series to a common origin, and applying a filtered backprojection algorithm to the aligned tilt series to calculate tomograms of mitochondria in each section. Full tomograms were obtained by joining the reconstructions of up to four serial 300nm sections. From the measured structural features, measurements of other features of cristae membranes are extrapolated computationally. Geometric measurements predict linear relations between lamellar radius versus radius of the cristal membrane (modulated by the number of tubes), and the number of tubes versus radius of the cristal membrane describing the geometric constraints within the structure of the normal mitochondria. The free energy model combined with the geometric measurements predicts that tubular structures are stabilized by tensile forces of 10-20 pN, comparable to those typical of motor proteins. It also predicts the pressure...
differences of 0.01-0.1 atm across crista membrane and surface tensions of less than 0.2 pN/nm, the point at which a membrane ruptures. We are interested in investigating if this free energy model can be utilized to derive accurate thermodynamic predictions of less developed or semi-destroyed cristaemembranes that are observed in cases of fusion and fission respectively.

**#406 8:15**

*General Curvilinear Ocean Model: Next Generation*

Mohammad Abouali, Computational Sciences (D)
Jose Castillo, Computational Sciences

Ocean has a strong impact on the atmosphere and nearly two third of the world’s population live by the coast and their life is affected by the ocean. Therefore, studying the ocean and understanding its impact is inevitable. The goal of our research project, i.e. “General Curvilinear Ocean Model: Next Generation (GCOM-NG)”, is to deliver a forefront coastal model that will be more accurate and computationally efficient than other available models. GCOM-NG differs in different aspects from other commonly used coastal models. Using general curvilinear coordinate is the most important features of this model. Traditionally, coastal models make use of sigma-coordinate, which cannot represent non-convexity in the vertical and it is well documented that it affects the calculation of different oceanic variables particularly on the steep slopes. Furthermore, the majority of the commonly used ocean models make use of hydrostatic assumption to calculate pressure. Again, in the coastal regions and on the fast varying slopes, this assumption will lead to considerable error in pressure calculation, which affects the entire flow system of the ocean. Moreover, nowadays there is a need on high-resolution ocean models for the detail studies of the different subjects including biogeochemical studies, where hydrostatic assumption will fail in the refined resolutions. This has motivated us to develop GCOM-NG, which uses general curvilinear and non-hydrostatic equation to address today and future needs of oceanography committee and the study of ocean-human impacts.

**#407 8:30**

*Mimetic Divergence, Gradient, and Boundary Operators over Non-uniform, Two-dimensional Meshes*

Elbano Batista, Computational Sciences (D)
Jose Castillo, Computational Sciences

Mimetic operators are approximations that satisfy discrete versions of continuum conservation laws and are used for finding numerical solutions of partial differential equations (PDE’s). A technique for constructing mimetic schemes over non-uniform, structured, two-dimensional meshes is proposed. We construct divergence, gradient, and boundary operators based on the application of local transformations and show how to use them for solving PDE’s with general boundary conditions. Finally, a numerical convergence analysis is presented by solving a boundary layer like problem over different kind of meshes.

**#408 8:45**

*Hopping Behavior and Effects of Noise in Cellular Pattern-Forming Systems*

Joan Martinez, Computational Science (D)
Antonio Palacios, Mathematics and Statistics

Patterns are found everywhere in nature and can occur in chemical, physical and biological systems. Pattern formation is a phenomenon that has been studied for decades and its analysis very often consists of finding a differential equation that models the system that one wishes to study. In the particular case of cellular patterns, pattern emergence is driven by symmetry breaking bifurcations, which play a main role in determining the family of patterns that can be observed. Moreover, the presence of different types of noise in physical systems has been shown to affect the symmetry breaking bifurcation process. In this research work we study the effects of multiplicative and additive noise on a spatio-temporal pattern-forming nonlinear Partial Differential Equation (PDE) model for premixed flame instability, known as the Kuramoto-Sivashinsky equation, in a circular domain. Modifications of a previously developed numerical integration scheme allow for longer time integration in the presence of noise. In order to gain additional insight, we focus on a region of parameter space where “hopping” cellular flame patterns of the deterministic system arise. These are dynamic patterns in which individual cells make sequential, and abrupt, changes in their angular positions while they rotate non-uniformly about the center of a circular domain. Normal form analysis and experimental works have shown that these patterns are associated with a homoclinic cycle connecting group related equilibria. In fact, they emerge through a co-dimension three steady-state bifurcation of three modes with wave numbers in a 2 : 3 : 4 ratio. While cycles are known to exist in the mode-2 and mode-4 interaction, here we show that mode-3 destabilizes the connection so that only remnants, i.e., intermittent flame patterns, of the cycles can be observed. We also discuss the numerical challenges in the integration of Kuramoto-Sivashinsky (KS) equation in polar coordinates with the addition of the noise term and show some results of the implementation of the numerical scheme to solve both the PDE and the normal form equations.
Modeling of Urban Canopy with Complex Land Surface by Using Immersed Boundary Method in Large Eddy Simulation

Long Sun, Mechanical Engineering (D)
Dr. Asfaw Beyene, Mechanical Engineering

Faithful modeling of urban canopy based on complex land surface is a key step to describing the water, heat and momentum transport in the atmospheric boundary layer of urban area. However, most Large Eddy Simulation (LES) codes in the atmospheric boundary layer either are limited to cube shaped buildings on the flat land surface in the urban area, or have to couple with other land surface model to implement real urban area simulation. The Immersed Boundary Method (IBM) can be used to simulate flow around any obstacle without changing the typically used Cartesian grid, finite-difference configuration. Lagrangian dynamic Subgrid-scale (SGS) models model the effect of the unresolved scales on the resolved LES flow field, and are critically important in the area near the surface boundary, can determine an appropriate local value of the Smagorinsky coefficient, which determines the magnitude of the dissipation of turbulence kinetic energy by the SGS. Combining the IBM with Lagrangian dynamic SGS model will allow the accurate simulation of the water, heat and momentum transport effects of urban canopy based on complex land surface in one model. Numerical simulation of the flow over two-dimensional sinusoidal land surface and urban canopy is set up in the research. The results will be validated against the results of other simulations and experiments.

Nonlinear Sliding Surfaces; Computing and Existence of Solution

Azad Ghaffari, Control And System (D)
Sridhar Seshagiri, Electrical and Computer Engineering

In this paper, we have concentrated on real systems consisting of structural uncertainties also affected by external disturbances. In this regard, Sliding Mode Control is utilized. To decrease energy consumption, arising from chattering phenomenon, a smooth switch has been used in design procedure. Consequently, sliding equation will play a dominant controlling role in its neighborhood. The converging property of sliding motion towards the origin is a challenging issue. In this article we present a new method to prove the stability of the sliding phase which means, state trajectories on the sliding surface move toward the origin. At the beginning, the equivalent control method is reestablished such that makes this purpose accessible. The modification bounds the sliding equation to a converging set. Then to improve main factors of closed loop system, such as, transient behavior, energy consumption and the domain of attraction, the optimal control theory is used to compute the optimized sliding surface in the stabilizing set. Generally, desired surface has nonlinear terms. Finally, we propose an elaborate algorithm for computing optimized nonlinear surfaces. The designed controller is applied to a flexible--link setup. Simulation results show the efficiency of the proposed approach.

Modeling Sagnac Interferometry of Bose-Einstein Condensates

Marty Kandes, Computational Sciences (D)
Michael Bromley, Physics

First demonstrated in 1913 by French physicist Georges Sagnac, the Sagnac effect is a shift in the phase and frequency between two counterpropagating beams of light that occurs when the beams are confined to propagate in a ring-like geometry that is placed in a non-inertial, rotating reference frame. Today, nearly 100 years after its discovery, this rotationally-induced effect forms the fundamental basis for all modern optical gyroscopes currently used in high-precision inertial navigation and guidance systems. In the next decade, however, these traditional optical gyroscopes will likely be replaced by atom-optic-based designs. In particular, guided matter-wave Sagnac interferometers that exploit the coherent source of ultracold atoms provided by dilute atomic gas Bose-Einstein condensates offer theoretical measurement sensitives that are several orders-of-magnitude better than their photon-based counterparts. In this work finite difference methods are used to perform numerical calculations of the time-dependent Gross-Pitaevskii equation, a nonlinear Schrodinger-type equation that describes the dynamics of dilute atomic gas Bose-Einstein condensates, in order to simulate Sagnac interferometry between counterpropagating condensate wave packets within a rotating circular waveguide. By studying the propagation of Bose-Einstein condensates in the rotating waveguide and measuring the phase shifts observed in the resulting interference patterns, we aim to understand how the nonlinear, mean-field interaction of the condensates will impact the performance and interferometric stability of these atom-optic gyroscopes.
Session D-16
Oral Presentation: Communication Devices and Antennas I
Saturday, March 5, 2010, 8:00 am
Location: Montezuma Hall

#232  8:00
Investigations on Ground Plane Reconfiguration based Frequency Agile Microstrip Patch Antennas
Rahul Bakshi, Electrical Engineering (M)
Satish Sharma, Electrical and Computer Engineering

Reconfigurable antennas are highly desired in today’s wireless communication systems because it reduces number of antennas in a communication system and thereby cost of the antenna systems. Further, microstrip patch antennas are lighter in weight, and smaller in size, therefore have been used to create frequency agile antennas. There are different methods for achieving frequency agility with the patch antennas; however we have selected ground plane reconfiguration approach. In here, we present both narrow band and wideband patch antennas and their frequency agility performance while radiation patterns are almost preserved. The wideband patch antenna incorporates E-shape patch in addition to U-slot loading and provides 38% impedance matching. As ground plane height was varied, the antenna matching performance changed. The antenna radiation performance is preserved as expected in this case and so is the case with narrow band patch also. These antennas are being fabricated and will be experimentally verified. The results will be presented during the symposium.

#233  8:15
Investigations on the Design of a Wideband Microstrip Bandpass Filter with Defected Ground Structures (DGS)
Pankaj Dagar, Electrical and Computer Engineering (M)
Satish Kumar Sharma, Electrical and Computer Engineering

In this research, we have studied and designed and fabricated a wideband microstrip bandpass edge coupled filter using defected ground structures (DGS) with the ansoft designer tool and will see the effects of the DGS characteristics on the bandpass filter. It has been shown that with the help of DGS the bandwidth of the bandpass filter can be increased effectively. The simulations are carried with the help of Ansoft Designer Tool. The bandwidth of the original microstrip filter is the 62% with a passband ripple is 0.218 dB and the return loss here is studied with respect to -10db. Here we have studied many defected ground structures like horizontal structures and vertical and combinations of the horizontal and vertical and spiral structures which are applied to the original microstrip bandpass filter to increase the bandwidth. After applying defected ground structures to the original microstrip filter the bandwidth achieved with a vertical DGS. We fabricated the filter on FR4 substrate with the scaled design so we can compare the measured results with Original filter having a bandwidth of 45%(1.9–3.05 Ghz) and with DGS the bandwidth is 65%(1.62–3.18 Ghz). Finally this research concludes that the bandwidth of the filter can be improved effectively with the help of the defected ground structures and the filter can be made with compact size. So in this research we have attained a wideband microstrip bandpass filter with a frequency band of 2.75Ghz to 5.27Ghz. Furthermore research work will be done to achieve a bandpass filter with EBG structures at a frequency range of 2Ghz to 6Ghz which has many uses in the communication.

#234  8:30
Investigations on Co-planar Waveguide Fed Pentagon Shaped Planar Monopole Ultra-Wide Bandwidth Antenna Providing Invariant Radiation Patterns
Robert Moody, Electrical Engineering (M)
Satish Sharma, Electrical Engineering

As commercial and industrial applications call for faster wireless data rates, highly specialized antennas are increasingly crucial in wireless communication systems. In response to this demand for higher data speeds, the Federal Communications Commission authorized the unlicensed use of a frequency spectrum dubbed ultra-wideband (UWB) in 2002. The UWB spectrum ranges from 3.1 to 10.6 GHz, which is a fractional bandwidth of greater than 109%. This wide bandwidth allows for high data rates, but requires antennas to be carefully designed to achieve good performance across the entire band. A great deal of research has been performed on antennas that will satisfy the greater than 109% fractional bandwidth criterion, as well as be compact, efficient, and inexpensive to produce. While many antenna designs have been produced that satisfy some of the conditions, few antennas can satisfy all the conditions at once. In particular, many UWB antennas suffer from radiation patterns that degrade significantly over the band. A novel planar monopole antenna (PMA) is proposed that is fed by a co-planar waveguide and utilizes rectangular slots in the ground plane and in the planar monopole to produce a stable radiation pattern and gain across the entire
The PMA exhibits 140% impedance bandwidth (w.r.t $S_{11} < -10\text{dB}$), a 3dB gain bandwidth of greater than 120%, and a radiation efficiency that exceeds 97% over the UWB. The antenna is fabricated on a single side of a low-cost foam substrate, and has dimensions of 45mm x 54mm. The proposed antenna meets or exceeds all UWB requirements, and is compact, inexpensive, and easy to fabricate. Research was performed using the full wave electromagnetics analysis tool High Frequency Structure Simulator (HFSS) version 11. The antenna has been fabricated and the simulation results experimentally verified.

#235 8:45

**Investigations on Novel Reconfigurable Aperture Antennas Employing Multimode Radiating Elements and Metamaterial Structures**

Nathan Labadie, Electrical Engineering (D)
Satish Sharma, Electrical and Computer Engineering

Reconfigurable aperture array antennas are essential components of modern radio frequency systems ranging from mobile phones to advanced radar targeting systems. Perhaps most importantly, such arrays allow for the integration of many independent communication channels into a single compact aperture. There are several performance inhibiting factors that degrade the array performance including mutual coupling between radiating elements and formation of grating lobes in the array beam pattern. We are investigating two methods in tandem to enhance reconfigurable array performance. Metamaterials embody a new class of materials whose electromagnetic properties can be engineered from periodic arrangements of highly subwavelength structures. Mutual coupling can be addressed using metamaterials to improve the free space impedance matching as a function of scan angle. We have previously proposed the novel folded ring resonator (FRR) metamaterial, which was shown to possess left-handed wave propagation, linear to circular polarization conversion, and asymmetric transmission. We are currently investigating novel dielectric resonator based metamaterial structures that benefit from lower loss over their conductor based counterparts. Multimode radiating elements have also been shown to improve phased array performance by using higher order modes to lower the reflection coefficient at wide scan angles. Our proposed research seeks to use these higher order modes to achieve single element beam scanning. There are some examples of these scanning elements in the literature, but further research is warranted.

We have demonstrated that single element beam scanning can improve directivity as a function of scan angle and yield larger scan angles for a fixed progressive phase shift. Mutual coupling may also be reduced using orthogonal or low coupled radiating modes between elements. Our goal in this research is to use novel metamaterial structures and multimode radiating elements in parallel to improve the array beam scan range. We will present preliminary results in novel metamaterial design and ideal multimode element behavior.

#236 9:00

**Novel Designs for Electrically Small Antennas (ESA)**

Alberto Rodriguez, Electrical Engineering (D)
Satish Sharma, Electrical and Computer Engineering

The electrically small antennas (ESA) are subject to certain fundamental limitations and find numerous applications in wireless communication starting from very low frequency to microwave frequency. The optimization of ESA requires obtaining the minimum Q (quality factor). The available impedance bandwidth, radiation efficiency, and power handling capability are inversely proportional to radiation Q. The optimization of ESA requires obtaining the minimum Q for the available volume. Thus, knowledge of the minimum radiation Q is important for its design. The authors investigate the fundamental limits (e.g. Chu Limit) imposed by small antennas, and thereby gains insight into the minimum aspect ratio or antenna volume which can provide the best performance. By providing theoretical bounds on the quality factor Q, the performance of small antennas can be quantified. The existing theory (Chu limit) provides limits on radiation Q for an antenna contained within a sphere and gives no information about effect of shape. The proposed work involves investigating antennas miniaturization techniques including capacitive, inductive, and material loading to operate a lower frequencies. The research work will be done in a quarter wavelength monopole at the 1 GHz range. The focus is to iterate on the creation of different geometries with different aspect ratios to characterize and model new antenna designs and compare experimental, numerical simulations and theory.
Session D-9  
Oral Presentation: Biology  
Saturday, March 5, 2010, 10:15 am  
Location: Backdoor

**#412  10:15**  
**iCRE-CVB3: A Molecular Reporter Virus to Identify Sites of Persistent Coxsackievirus Infection**  
Ross Rhoades, Molecular Biology (D)  
Ralph Feuer, Biology

Group B coxsackieviruses are a significant cause of aseptic meningitis and encephalitis in humans. The central nervous system (CNS) of neonatal mice is highly susceptible to infection by coxsackievirus B3 (CVB3), and neural stem cells are early targets for infection. Previously, we demonstrated the detection of infectious CVB3 in the neonatal CNS for up to ten days post-infection (PI). Additionally, viral RNA was detected by real time RT-PCR up to ninety days PI, despite the lack of infectious virus at later time points. The aim of the current study was to generate a unique recombinant CVB3 expressing an improved eukaryotic codon version of Cre recombinase (iCRE-CVB3) which could catalyze the permanent expression of a Cre reporter gene in target cells. iCRE-CVB3 will be used to infect ROSA26 Cre reporter mice, or alternatively Z/EG dual Cre reporter mice which constitutively express the lacZ gene in absence of Cre recombinase. In the presence of Cre recombinase, a functional DNA rearrangement in Z/EG Cre reporter mice activates the permanent expression of GFP. Thus, GFP is expected to be expressed in previously-infected cells for the lifetime of the host organism, thereby providing a footprint for tracking viral spread and sites of persistence regardless of virus replication and protein expression levels. Recently, we generated a genetically stable and high-titered stock of iCRE-CVB3 in HeLa cells following transfection of in vitro transcribed viral RNA generated from our iCRE-CVB3 plasmid clone. iCRE-CVB3-infected HeLa cells demonstrated detectable levels of Cre recombinase protein expression, as determined by immunocytochemistry using a Cre recombinase-specific antibody. As a first step, we isolated and expanded neurospheres (primary neural progenitor and stem cells) from Z/EG transgenic mice. Upon infection with iCRE-CVB3 at a high multiplicity of infection, Z/EG neurospheres were highly susceptible to infection and expressed Cre recombinase protein, as detected by immunoblot analysis. Our ultimate goal is to utilize iCRE-CVB3, in combination with Cre reporter mice, to study the link between persistent viral infection and chronic diseases, such as diabetes, myocarditis, and neurological disease. Utilizing our novel recombinant coxsackievirus and the Cre reporter system, we expect that a connection between prior viral infection and eventual disease manifestation may become firmly established.

**#413  10:30**  
**Timer-CVB3: A Recombinant Coxsackievirus Which Utilizes “Fluorescent Timer” Protein to Track the Progression of Infection in Real Time**  
Scott Robinson, Cell and Molecular Biology (D)  
Ralph Feuer, Biology

Enterovirus infections are quite common in the United States, causing approximately 10-15 million symptomatic infections every year. Coxsackievirus B3 (CVB3), a member of the picornavirus family and enterovirus genus, has been shown to be responsible for viral myocarditis, aseptic meningitis, and pancreatitis in humans. We genetically engineered a unique molecular marker, “fluorescent timer” protein, within our infectious viral clone, and isolated a high-titer viral stock (Timer-CVB3) following transfection in HeLa cells. “Fluorescent timer” protein changes its fluorescence from green to red over time. Therefore, Timer-CVB3 was used to track the length of time an individual cell was infected in real time based upon its fluorescent color. HeLa cells were infected with Timer-CVB3, dsRED-CVB3, or eGFP-CVB3 and monitored by flow cytometry. As expected, dsRED-CVB3 and eGFP-CVB3-infected HeLa cells expressed high levels of their respective fluorescent reporter proteins, as determined by flow cytometric analysis. In contrast, Timer-CVB3-infected HeLa cells slowly changed fluorescence from green to red over 72 hours, as determined by either flow cytometric analysis or by fluorescence microscopy. Intriguingly, the slow change in fluorescence for Timer-CVB3-infected HeLa cells could be stopped or frozen in the presence of formalin, suggesting that the fluorophore associated with “fluorescent timer” protein can be stabilized by formalin cross-linking reactions. We expect that Timer-CVB3 will give us the ability to observe cell-to-cell spread and the progression of infection in target organs, such as the heart, brain, and pancreas. In addition, Timer-CVB3 will be utilized to follow reactivation of latent CVB3 infection, and the subsequent induction or inhibition of the antiviral interferon response at the single cell level. Through the use of this novel virus, we hope to gain a better understanding of CVB3 tropism and pathogenesis in our animal model of infection.

**#415  10:15**  
**Functional Roles for the ER Stress Response in Stem-cell Mediated Cardiac Repair**  
Shirin Doroudgar, Cell and Molecular Biology (D)  
Christopher Glembotski, Biology

Perturbations in redox status in the rough endoplasmic reticulum (ER) cause accumulation of misfolded ER-proteins, resulting in the activation of the ER stress response (ERSR). Recently, we showed that ischemia activates the ERSR in cardiac myocytes, in vitro, and in the heart in an in vivo mouse model of myocardial
infarction. Moreover, the presenter showed that the branch of the ERSR mediated by the transcription factor ATF6 was activated by simulated ischemia in cultured neonatal rat cardiac myocytes, and that activated ATF6 decreased ischemia-mediated cell death. The presenter also showed that ER stress was activated in progenitor cells in the border zone of mouse hearts subjected to myocardial infarction, and it was activated by simulated ischemia in cardiac progenitor cells derived from adult mouse hearts. Although these studies suggest that ATF6 induces cardioprotective genes, thereby affecting stem cell function, the role of ATF6 in cardiac repair has not been studied. Recently, we identified novel protective ATF6-inducible genes in mouse hearts, in vivo. Among the compelling candidates discovered were genes encoding numerous potentially secreted proteins. The novelty of this finding lies in the fact that, although global protein synthesis and secretion are down-regulated during the ERSR, expression and secretion of this group of proteins are increased. Of the ATF6-, ERSR-inducible cytokines, high mobility group box 1 protein (HMGB1, amphoterin) has the most diverse and potentially important functions in mediating protection and, perhaps, regeneration of the damaged heart. The hypothesis addressed in this study is that the activation of the ATF6 branch of the ERSR in cardiac myocytes and cardiac progenitor cells contributes to protection and repair of the heart after ischemic injury, and that unique ATF6-inducible cytokines serve paracrine roles that facilitate protection and repair. Accordingly, this study was undertaken to determine the effects of a protective branch of the ERSR in the ischemic heart, focusing on paracrine roles of ATF6-inducible gene products in cardiac repair.

Session D-10
Oral Presentation: Women's Studies
Saturday, March 5, 2010, 10:15 am
Location: Calmecac

#416 10:15

**Body Image After Breast Cancer: What Female Undergraduates Anticipate**

Aruna Patel, Psychology (U)
Elizabeth Cordero, Psychology

The purpose of this study is to find what female undergraduates anticipate their body image would be if they were to be diagnosed with breast cancer and undergo a mastectomy. Body image is the perception and evaluation that a person has of her or his body, especially with regards to weight and shape. Research has shown that women with breast cancer who have undergone mastectomies often have higher rates of body-image dissatisfaction following their procedure than do women who have not undergone mastectomies (Helms, O’Hea & Corso, 2008). The way that women cope with the advent of breast cancer might depend on their views about breast cancer and what their lives would be like after surgery. This study will look at what body image means to female undergraduates and how present body image and self-esteem relate to body image after mastectomy. Body image of female undergraduates will be examined because female undergraduates are a population that is already at-risk for body-image problems (Ganem, Heer & Morera, 2008). It is hypothesized that present levels of body-image dissatisfaction and self-esteem will predict anticipated body image after a mastectomy. Data have been collected via an online questionnaire from female undergraduates enrolled at San Diego State University. Participants received course credit in Psychology 101 for their participation. Participants answered demographic questions, the Body Esteem Scale (BES; Franzoi & Shields, 1984), and the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965). After filling out these questionnaires, the participants were told to imagine that they had been diagnosed with breast cancer and had undergone a mastectomy, and were then presented with a version of the Body Image After Breast Cancer Questionnaire (BIBCQ; Baxter et al., 2006) that was modified to reflect the hypothetical nature of the study. Data will be analyzed using simultaneous multiple regression. Implications of the results and future directions will be discussed. Future directions include whether or not anticipated body-image concerns influence treatment decisions and timeliness of treatment when a woman has been diagnosed with breast cancer.

#417 10:30

**Body Modification and Femininity**

Yelena Bespalko, Psychology (U)
Melissann Herron, Women's Studies

The purpose of this research is to determine the extent to which the mass media and popular culture influence women’s’ conceptualization of physical appearance in regards to body modification. This research utilizes secondary data that reflects on the procedures of plastic surgery, tattoos, and body piercings. The process of body modification involves the idea that the body is an entity that can be manipulated, and is therefore fluid and can be reconstructed. The trend toward social liberation is parallel with the trend toward physical, aesthetic liberation. Breaking normative definitions of female fragility, women may mutilate their bodies through deviant piercings or indelible ink. However, a more common and accepted cosmetic practice among women in recent years has become plastic surgery. The rising occurrence of this very invasive altering mechanism can be attributed to an
increasing emphasis on physical attractiveness as the core value of a woman. The boundaries that surround and encompass what is considered beautiful in our society have been molded by an internalized system of oppression that is dictated by patriarchal demands. These dominant discourses are manifested through repetitive positive reinforcement of confining ideals expressed in popular culture, giving birth to a whole new era of extremely narrow standards. Television shows, movies, advertisements, commercials, magazines, and other media encourage socially constricted interpretations of beauty, and massive business ventures are centered at making a profit by stabilizing these paradigms. This paper explores how women are affected in these regards, and how defiance and compliance with these structures impacts mainstream culture. An increasing amount of women are resorting to body modification as an outlet geared toward striking control over their social roles. The majority of body modification practices actually contribute to the demolition of personal agency, encouraging women’s conformity to idealized projections of femininity and, as a result, devaluing their individual worth.

#418 10:45

**Let’s Go Home**

Jenny Woudenberg, Women’s Studies (U)
Doreen Mattingly, Women’s Studies

This project seeks to help one widow at a time leave the IDP camp and return to her homeland so she may be able to finish her life with dignity. Since there is now peace and people are allowed to return to their homelands, most of the NGOs are leaving the IDP camps, which has left the most vulnerable widows still stranded. Because these women have lost their sons and husbands due to the conflict, society has ignored their cries for help. This is an atrocity. Their cries must be heard because every human has the right to proper shelter. This project is benefiting all of society. It has most importantly helped the most vulnerable return to their homes. This project has also empowered the community to be self-reliant - not NGO dependant – and is reinstating the Acholi culture of community that was lost during the war. We all see millions of dollars being poured into fancy NGO cars, offices, and staff, so why not use a little of that money to help real beneficiaries’ human interests at the grassroots level? Currently a few members of this project are collecting data for the Parliamentary Performance Scorecard to assess the work of the elected Members of Parliament at constituencies in the districts of Kitgum, Pader and Abim as assigned by Africa Leadership Institute (AFLI).

#419 11:00

**Sexualized Violence and Economic Exploitation: Rape as a Strategic Weapon of War in the Democratic Republic of the Congo**

Moriah Meeks, Women’s Studies (M)
Dr. Elizabeth Colwill, Women’s Studies

A long history of economic exploitation, coupled with the internal struggles over resources amongst various ethnic groups, has created an increasingly militarized society in central Africa, specifically in the Democratic Republic of the Congo. These factors all contributed to the outbreak of multiple wars in this region from 1996 to the present. One strategy employed by all parties during these wars is the endemic rape of women and girls, estimated in February 2009 as anywhere from 200,000 to 500,000 women and girls. This paper draws upon women’s and grassroots organizations’ websites, a 2007 documentary, as well as the transcript of a 2008 Senate Subcommittee hearing on rape as a weapon of war to address both the causes and consequences of this epidemic of sexual violence. It finds that the widespread rape of women and girls is used as a form of genocide, as a way for an individual soldier or a group to gain power over an enemy, and as a strategy for fostering instability in the region. Consequences include increasing rates of sterility and AIDS, infanticide and abandonment of children born of rape, a decrease in food production, and the breakdown of family ties.

#420 11:15

**Feminist Zine Making as a Tool for the Production of Feminist Knowledge, the Dissemination of Feminist Knowledge, and the Creation of a Transnational Feminist Community.**

Jessica Spain, Women’s Studies (M)
Elizabeth Colwill, Women’s Studies

The activism of today’s young feminists is often held in comparison to the tactics utilized by their foremothers who organized to resist oppression in the 1960s and ‘70s. The strategies of these women, while perhaps less radical than those employed by second wave feminists, do not, however, result in more limited social transformation. The global activism of the “third wave,” through its communicative vehicle of choice, the feminist zine, has unique potential for recruiting members to a transnational movement toward social equality. Feminist zines—do-it-yourself mini-magazines that combine elements of personal journals, newsletters, and collages—have become increasingly popular due to the accessibility of Xerox machines and cheap copies (Bates
and McHugh 2005:175). As a unique outlet for self-expression and critical thinking, zines are an exciting format for alternative knowledge production and have the potential to address a wide range of topics pertaining to diverse groups of women situated in a variety of countries including the United States, Poland, and New Zealand. Many zine publishers, marginalized from and shut out of opportunities for professional publication, are given voice since independently produced zines are inherently free of censorship. Here, women are encouraged to record their experiential knowledge. By analyzing various feminist zines, zine distribution networks, and zine networks as primary source documents, I aim to reveal not only how feminist knowledge is produced by female zinesters, but also how feminist knowledge is disseminated among women active in zine culture. Through the trading of zines, the standard method of zine distribution, readers around the world may be exposed to hundreds of zines, most of which encourage their audiences to “join the conversation” by creating their own self-published projects either independently or through collective collaboration (Richardson 1996:10). By highlighting active participation, feminist zine culture encourages collaboration and collective organizing. Zine trading works to foster an informal community of feminists who create and distribute alternative media in order to confront gender oppression on a transnational level. Feminist zine community is growing globally and feminist zinesters around the world are fostering more inclusive discussions of gender, race, class, and sexuality among young female cultural producers and their readers.

Session D-11
Oral Presentation: Relationship Violence
Saturday, March 5, 2010, 10:15 am
Location: Casa Real

#421 10:15
Predictors of Physical and Emotional Dating Abuse in Female Perpetrators
Vanessa Watts, Psychology (M)
Emilio Ulloa, Psychology

Dating violence is sexual, physical, and psychological actions that attempt to control and harm another person in an intimate relationship. Each year, 25% of adolescents experience psychological, physical, or sexual abuse. Consequences of relationship violence include, increase in physical injuries, mental health problems, levels of anger and fear, decrease in self-esteem, and relationship satisfaction. Social learning theory argues that growing up in abusive households teaches individuals to use forms of aggression as a viable means for dealing with interpersonal conflict. In order to investigate this matter further we explored how emotional forms of family based abuse compared to physical forms of family based abuse in predicting perpetration of relationship violence. Furthermore, for the purpose of our study we chose to focus on female perpetrators as female relationship violence perpetration is not well understood. The current study examined the predictors of perpetration of physical and emotional dating violence within women. 215, female college students completed self-report measures of mother and father corporal punishment, mother and father authoritarian parenting, parental verbal hostility, childhood physical neglect, perpetration of sibling violence, and perpetration of violence within present dating relationships. Bivariate correlations between the above mentioned variables and violence were analyzed. Statistically significant relationships were detected between perpetration of physical dating violence and mother corporal punishment ($r = .183, p = .007$), father corporal punishment ($r = .153, p = .025$), and perpetration of sibling violence ($r = .177, p = .009$). Also, statistically significant relationships were detected between perpetration of emotional dating violence and childhood physical neglect trauma ($r = -1.148, p = .030$), mother authoritarian parenting ($r = .171, p = .012$), and mother verbal hostility ($r = .202, p = .003$). The results suggest that there may be different predictors for different forms of dating violence such that; mother and father corporal punishment and perpetration of sibling violence predict perpetration of physical violence while childhood physical neglect trauma, mother authoritarian parenting, and mother verbal hostility parenting predict perpetration of emotional dating violence.

#422 10:30
The Moderating Effect of Perceived Positive Peer Norms on the Relationship between Gender, Acceptance of Violence, and Perpetration of Teen Relationship Violence
Brenton Stewart, Developmental Psychology (M)
Audrey Hokoda, Child and Family Development

Teen Relationship Violence (TRV) has serious and potentially long lasting effects. The effects of perpetration have been linked with many negative physical and mental health problems, such as risky sexual behavior, drug and alcohol use, unhealthy weight concerns, and even suicide. Approximately 20%–50% of adolescents experience some form of psychological, physical, or sexual abuse in their current or previous relationships. Moreover, perpetration within teen relationships continued into the early years of marriage for approximately 50% of newly married couples. There are many contributing factors to TRV perpetration, one of which is acceptance of violence. Previous research has shown that an increase in acceptance of violence may increase the likelihood that the individual will engage in teen dating violence. Gender also influences the acceptance of violence. Whereas dating violence is generally unacceptable, it is still more acceptable when
perpetrated by women than by men. Furthermore, teen males with positive attitudes toward violence are more likely to engage in teen dating perpetration. Due to the negative consequences of TRV, it is important to identify factors that can potentially change the relationship between acceptance of violence and TRV. Environmental factors, such as peer groups, have an impact on an individual’s acceptance of violence. Previous research has documented that peers have a significant influence on various forms of undesirable behaviors, including smoking, substance abuse, and dating violence. This research has focused mostly on peers’ negative influence. In contrast, the proposed study will examine the potential beneficial effects positive peer norms may have on an individual’s teen dating violence behavior. It is hypothesized that perceived positive peer norms will reduce the strength of the relationship between acceptance of violence and perpetration of teen relationship violence. Moreover, because women are more responsive to social norms than men, this moderating effect is expected to be more evident for women than for men. These hypotheses will be examined in a sample of local middle, high school and college students who have had at least one dating experience in the past year and who have completed a survey assessing attitudes towards violence, peer norms, and perpetration of violence within their present dating relationship. The data will be analyzed using hierarchical multiple regression. The three-way interaction between gender, acceptance of violence, and perceived positive peer norms accounted for a significant amount of overall variance of TRV perpetration F(6,497) = 6.603, p < 0.001. Specifically, the three-way interaction term accounted for a significant increase in explained variance, F(1,491) = 4.375, R² = 0.008, and was significantly associated with TRV perpetration, b = -0.112, p = 0.037. Implications for teen relationship violence prevention will be discussed.

#423 10:45
The Volunteer Probation Officer System/Program of Japan and the United States of America: A Comparative Study
Anthony Aguon, Criminal Justice & Criminology (M)
Paul Kaplan, Criminal Justice

This presentation will present a brief study of the Volunteer Probation Officer (VPO) system of Japan and the United States of America. In addition, this presentation will explore the historical background of volunteerism in probation. Following that will be a comparative analysis of Japan’s national VPO system and Orange County, CA’s VPO program. This paper will also provide a brief review of the statistics involving the VPO system of Japan and Orange County, CA.

#424 11:00
Associations between Weapon-Carrying Behavior and Adolescent Suicidality
Lauren Joe, Public Health, Epidemiology (M)
Suzanne Lindsay, Graduate School of Public Health

Statement of the Problem: Suicide has been the third leading cause of death among high school youth, 14 to 18 years old, in the United States for over a decade. Because suicide attempts are a strong predictor of future suicidality, a better understanding of associated risk factors may help strengthen efforts to reduce this burden. Literature suggests that violent behaviors, such as weapon-carrying weapons, are associated with suicide attempts. The purpose of this study is to investigate the associations between different types of weapon-carrying behaviors among youths and single or multiple suicide attempts using a nationally representative sample. There are three different types of weapon-carrying behavior assessed in this study: carrying any type of weapon; carrying a gun; and carrying any type of weapon on school property. Are these weapon-carrying behaviors associated with single or multiple suicide attempts among adolescents, and do these associations differ by gender? Methods: This cross-sectional study used data from CDC’s National Youth Risk Behavior Survey 2007. A polychotomous logistic regression model was fit to assess the relationship between weapon-carrying behaviors and single or multiple suicide attempts. The study controlled for known suicide risk factors: hopelessness, suicide ideation, making a suicide plan, and ethnicity. An interaction term for gender was included to assess whether the associations vary by gender. Results: After adjusting for all other variables in the model, the odds that a student who carried a gun also reported multiple suicide attempts were 3.2 times (95% CI 2.0–5.0) that of a student who reported no attempts; and the odds that a student who carried a weapon on school property also reported a single suicide attempt or multiple suicide attempts were 1.6 (95% CI 1.5–2.4) and 2.7 (95% CI 1.6–2.9) times, respectively, that of a student who did not carry a weapon on school property. These associations do not vary by gender. Conclusion: Carrying guns and weapons at school are associated with suicidality among youth, both males and females. This may be important for prevention and intervention efforts in terms of identifying at-risk students at increased risk of suicidal behavior.

#425 11:15
Anger Control: A Mediator between Parental Conflict and Relationship Violence
McKenzie Lewis, Psychology (M)
Emilio Ulloa, Psychology

Relationship violence is defined by sexual, physical, and psychological actions that attempt to control and harm another person.
in an intimate relationship (Wekerle & Wolfe, 1999). Research suggests that some exogenous variables, such as parental conflict, have an effect on children’s relationship violence later in life (Tschann et al. 2009). There have been many proposed suggestions, such as social learning theory (Bandura 1973), that explain the relationship between parental conflict and dating violence perpetration. Furthermore, research has shown that exposure to parental conflict is related to anger expressiveness (Clark & Phares, 2004), and that anger control is related to dating violence (Wolf & Foshee, 2003). It is possible that children exposed to parental conflict may not be learning the skills necessary to control their anger. Furthermore, Wolf & Foshee (2003) found that the link between familial violence and dating violence perpetration is weak for women, but strong for men. This study examines whether anger control can explain the relationship between parental conflict and relationship violence and whether the effect varies by gender. Three hundred sixty five college students completed a 45 minute online survey, which included the Family Experiences Scale (FES), (Moos & Moos 1974), the Conflict in Adolescent Dating Relationship Inventory (CADRI), (Wolf & Colleagues, 2001), and the Self-Efficacy-Teen Conflict Survey (Bosworth & Espelage, 1995). The results of the mediation analysis indicated that the relationship between parental conflict and relationship violence perpetration is partially mediated by anger control for men, but not for women. Possible reasons for the gender difference include male rates of violence compared to women’s rates, or differences in the expression of anger. The implications from this study for interventions, particularly, with respect to teaching young men anger control to prevent dating violence perpetration will be discussed.

Session D-12
Oral Presentation: Literature II
Saturday, March 5, 2010, 10:15 am
Location: Council Chambers

#426 10:15

**Love to Hate It: The Anti-Fandom of Twilight**

Jacqueline Pinkowitz, TFM Critical Studies; English (U)
Louisa Stein, Television, Film and New Media

This project examines the anti-fans of the young adult vampire book and movie series Twilight. This paper argues that the dedicated fans of a cultural text are not all that different from the anti-fans on the opposite end of the spectrum; both participate in their respective fandom in similar ways, both factions exhibit intense emotional responses the source of their (anti-) fandom, and both experience a pleasure of identity and community in their status as fan or anti-fan. My primary research for this paper came from Twilight fan and anti-fan websites including Twilightst-sAnonymous.com, BellaandEdward.com, TheAntiTwilightMovement.com, and TwilightSucks.com. In looking at these sites of fan and anti-fan sentiment, I examined the format, content, style, and apparent motivation, as well as forums in which users discussed both Twilight and unrelated issues. Scholar Jonathan Gray has written several articles outlining the “anti-fan,” including “Anti-fandom and the Moral Text” and New Audiences, New Textualities, which explore the personal rewards that such anti-fan (or fan) identities can provide. Scholar Vivi Theodoropoulou also examined anti-fandom in her essay “The Anti-Fan within the Fan” and discussed the animosity that arises between one cultural text’s fans and their anti-fans and the identity-formation involved in such rivalries. The main core of Twilight anti-fans are opposed to the emotional and erratic fans of Twilight as well as to a similarly emotional and violent group of Twilight anti-fans. These main anti-Twilighters profess to come from a position of rationality and civility and place themselves in contrast to the hostile fans and anti-fans whose angry diatribes and un-objective comments they post to their sites as proof of their own superiority. The main point for these anti-fans in citing the differences between themselves and the emotional fans and anti-fans comes in the formation of an identity, and the pleasures that come with that identity, like a community where they form valuable relationships that extend beyond the primary text. Thus, this project hopes to show that fandom (and anti-fandom) is a complex phenomenon which provides many sources of pleasure for its participants and which should not be simply written off by scholars.

#427 10:30

**Amending Masks and Secret Identities: The Journey of Asian American Superheroes and Portrayals**

Jonathan Valdez, Asian Studies (U)
Harrod Suarez, Asian Studies

As many iconic superheroes as Batman and Iron Man remain popular in contemporary society, the gap between White American superheroes and superheroes of color continues to widen. Asian and Asian American superheroes have limited visibility and have remained solely as secondary characters. The Asian American superheroes who have emerged and have gained popularity such as Jimmy Woo, the leader of the Agents of Atlas and more recently, the teenage genius Amadeus Cho exemplify Asian American characters created using racial preconceptions and stereotypes. The first section of this paper discusses the intersection of comic book roles and historical stereotypes Asian American comic book characters. Asian characters have evolved from villainous roles, to the job of the inscrutable sidekick, and more recently the hero. These portrayals of the hero are associated with the West’s idea of the Asian such as the dangerous hordes of the Yellow Peril or the intelligent automatons of the
Changes Tupac Shakur: Then and Now

Maya Ginsberg, Musicology (M)
J. Mitzi Kolar, Music

This research paper illustrates that the song “Changes” by Tupac Shakur reflects his experience as an urban African American male in the mid 1980s and examines why Tupac Shakur’s music and poetry continue inspire discussion years after his death. Tupac Shakur, arguably one of the most famous hip hop artists in the world, was born in New York in 1971 and came of age with the genre of hip hop. As a child, Shakur was exposed to the Black protest movement by his mother Afeni, a member of the Black Panthers. He was also exposed to extreme poverty, witnessed violence in the communities where he lived and experienced the effects of crack cocaine in his community and in his personal life as he observed his mother’s addiction. These intense childhood experiences found expression in his writing. Shakur produced song lyrics and poetry that explored the pains and the excesses of his life. Shakur’s trajectory towards hip hop stardom ended with his untimely murder at age twenty five. The song “Changes,” remains one of Shakur’s most recognized songs. Using a sample of the song “The Way It Is” by Bruce Hornsby and the Range, the lyrics of “Changes” depict the world Shakur experienced as an urban, African American male; the lyrics examine themes such as racism, police brutality, drugs, and gang violence. In “Changes” Shakur writes, “I’m tired of bein’ poor & even worse I’m black/my stomach hurts so I’m lookin’ for a purse to snatch.” In the 1980s, African Americans were disproportionately affected by poverty rates; by 1989, over fifty percent of 11.2 million people were African Americans living in severely disadvantaged communities. The song “Changes,” like much of Shakur’s work, paints a picture of world as perceived by one artist. The song accomplishes Shakur’s often quoted goal, “I just try to speak about things that affect me and about things that affect our community.”

#429 11:00
Grandma Knows Best

Bernie Toledo, Single Subject Teaching: English (U)

With the texts discussed in class as arguments in themselves, we constructed a graphic novel using common concerns between the texts “Ghostworld” and “Here We Are”. Although content between the two differ, they overlap on some levels of social institutions and subtext. The pictures provided by Daniel Clowes’ “World” link to the conversations between the nameless newlyweds of Dorothy Parker. With context as an obvious relationship between the two, other common issues tie the two texts together. Both texts touch on modern day relationships and their reality as opposed to what they’re supposed to be. In either of the two texts one can easily find dialogue where the characters even discuss what is expected of them at that point in life; either as a married person or teenager. Keeping that in mind, as well as outside sources such as the film ‘Just Married’, we created a not-so-perfect world for the more typically perfect Barbie and Ken. In our novel, one of the most “magical” nights in social culture becomes one that proves to be more of a disappointment. With that, expectations of relationships and human characteristics drown to their realities, as the two texts prove. Also the texts provided in class both included overdramatic but yet realistic dialogue between characters. While the dialogue comes off as unnecessary and extreme to a reader, when you think back to your own life, it becomes clear that it is in fact realistic. We tried to include some of that too between America’s sweetest couple and reflect the reader’s own life ambiguously. Rhetorical strategies also become very important in relating the work of Clowes and Parker. Whether in visual or words or lack of either, both authors give texture to their stories with subtle and obvious rhetoric. Writing styles are a very big part of what creates what the reader interprets and we touched on strategies of both authors for our own book. As you’ll notice in our novel, we chose to use rhetoric our own way to enhance impact of the reading. We included certain colors and shapes to set moods of different pages, and other pieces we’ve kind of left open for interpretation.
Abstr Acts

STUDENT RESEARCH SYMPOSIUM 2010

Rebecca Hershberger, American Literature (M)
Book within the Oz Series
Inside or Outside of Oz: Placing Baum’s The Woggle-Bug

Jane Mitzi Kolar, Music
Alexandra Tea, Music (M)
Compositional Techniques, Narrative, and Lyrics
The Beatles’ Sgt. Pepper’s Lonely Hearts Club Band

#430 11:15
The Beatles’ Sgt. Pepper’s Lonely Hearts Club Band as a Concept Album: An Analysis of Instrumentation, Compositional Techniques, Narrative, and Lyrics
Alexandra Tea, Music (M)
Jane Mitzi Kolar, Music
Since its release in 1967, the Beatles’ Sgt. Pepper’s Lonely Hearts Club Band has been declared rock music’s first concept album by fans and critics. This widespread belief is most probably due to the theme reflected in the album title, the album cover, and the first song and its reprise. However, there is much opposition to the contention that Sgt. Pepper is a concept album. The purpose of this study is to determine whether the Sgt. Pepper album is a concept album. The definition from Roy Shuker’s Popular Music: The Key Concepts, which describes a concept album as an album “unified by a theme, which can be instrumental, compositional, narrative, or lyrical,” is applied to Sgt. Pepper. The study examines the instrumentation, compositional techniques, narratives, and lyrics of Sgt. Pepper to determine if the album is unified by any of these four elements. Although the Beatles employ their standard guitars, bass guitar, and drums throughout Sgt. Pepper, they include instruments as diverse as harpsichord, sitar, tamboura, harmonica, a forty-piece orchestra, and electronic tapes, making the instrumentation of each song on the album very different. Second, other than the opening song and its reprise at the end of the album, there are no melodic or harmonic themes that relate the other songs to each other. Because the album includes rock and roll, traditional Indian music, jazz, classical, and avant-garde compositional techniques, the musical styles of the songs are too eclectic to be related. Third, the narratives in the songs are independent from each other. Only three songs on Sgt. Pepper narrate the story of Sgt. Pepper’s band, as opposed to an album like Tommy by The Who, in which all songs narrate elements of the same story. Fourth, the subjects of the lyrics range from musical performance, friendship, psychedelic imagery, love, circus, and loneliness, and do not contain a strong thematic thread that connect the various topics. This study concludes that Sgt. Pepper is not unified by an instrumental, compositional, narrative, or lyrical theme, and therefore is not a concept album.

#431 11:30
Inside or Outside of Oz: Placing Baum’s The Woggle-Bug Book within the Oz Series
Rebecca Hershberger, American Literature (M)
The Woggle-Bug Book (WBB) occupies a tenuous position within L. Frank Baum’s Oz series. Infrequently mentioned and regularly overlooked in the academic discourse pertaining to Baum’s Oz stories, The WBB is distinctive in its history, structure, and content. The book details two adventures of H.M Woggle-Bug T.E. in America. It is the first published book of the series situated entirely outside of the realm of Oz that centers on a supporting Oz character. Because of its length, the book resembles a novella more than a traditional Oz novel. However, Reilly & Lee, the original publisher of all Baum’s Oz books, released it as part of the series. The WBB reveals a darker side of Baum. The human characters with which the Bug interacts are, at times, unsophisticated and odious caricatures of ethnic minorities. These distinctive and controversial components of The WBB beget the question of whether the book belongs within the Oz series. In his introduction to the 1978 facsimile reproduction of The Woggle-Bug Book, Douglas G. Greene posits that the book’s peculiar and fragile construction prohibited its collectability and sustainability, and therefore copies of the book are more difficult to procure than the other Oz books. Greene states, “It was bound in thin cardboard covers with a cloth spine, and its large size (15” X 11”) meant that copies were often bent and torn. On the whole the book was not printed competently” (xi). The book’s poor construction led to its physical absence from libraries and other Oz collections, and this absence contributed to the scarce mention of the book in Oz discourse. Simply, the sheer difficulty of obtaining the book barred its discussion. If part of the reason for The Woggle-Bug Book’s separation from the Oz series is due to its rarity, then arguably, the other elements contributing to the neglect of the book in Oz discourse must pertain to the book’s content. Focusing primarily on the storyline of the Bug’s pursuit of the elusive dress of ‘Wagnerian Plaid’ and examining The WBB’s history, literary components, and the controversial racial caricatures in order to determine the book’s ‘Ozziness’, I endeavor to demonstrate that The WBB resides decisively within the Oz cannon.

#432 11:45
Beauty, Memory and Trauma in Cormac McCarthy’s “The Road”
Pierre Lalague, English, (M)
Joanna Brooks, English and Comparative Literature
After a disaster described as “a long shear of light, then a series of low concussions”, a man and his son struggle to survive in a “Godless” country beneath a dark, sunless sky. They must stay hidden and keep finding food, or else they will die. Ash and trash cover the once-green earth. Neighbors forget all sense of fairness and cannibalize each other. To survive, the “good guys” must desensitize themselves to the horrors around them and focus on their own survival; a beautiful distraction or a misdirected act of altruism could cost them their lives. This examination of the relationships between beauty, justice, trauma, and self-preservation in McCarthy’s post-apocalyptic novel will use literary theory from Elaine Scarry’s On Beauty and Being Just and Cindy Caruth’s Unclaimed Experience.
#433 10:15

**A Comparison of Accuracy between Point Cloud Data from a Terrestrial Laser Scanner and Past Surface Area Calculation Methods at Green Waste Facilities**

Adam Frandson, Civil Engineering (U)  
Colin Milberg, Civil, Construction and Environmental Engineering

The first step in solving the problem of climate change is to identify contributors of climate change and to quantify their greenhouse gas emissions. This research is part of a larger study to collect greenhouse gas emission and temperature data from windrows, long piles of green waste, at green waste facilities in order to accurately reflect the contribution green waste facilities have to greenhouse gas emissions in America. A vital component in quantifying emissions is properly defining the surface area of the windrow. For the first time, a Trimble GX 3D Laser scanner was used to collect surface area data. To date, methods for calculating surface area have used simple geometric models as approximations of the windrow based on simple height and width measurements. This paper compares surface areas calculated from point cloud data produced by a laser scan to existing methods. Using the laser scan calculations as the baseline, the comparison shows that even in the most accurate geometric estimation still results in a 23% underestimate in the surface area. Because error in the surface area calculation directly contributes to error in the green house gas emissions calculations at a green waste facility, emissions from these facilities are actually higher.

As such this paper concludes that a terrestrial laser scanner is critical to accurate emissions calculations.

#434 10:30

**Simulation of Shadow Effect on 3D Organic Photovoltaic cell**

Mihir Parikh, Mechanical Engineering (M)  
Sam Kassegne, Mechanical Engineering

Rising inventory levels of photovoltaic (PV) panels and new production capacity is driving solar PV prices lower and thereby, bringing solar energy closer to grid price parity. Major studies must be made in solar cell efficiency. We have developed a three-dimensional solar cell structure which is different than conventional 2D solar cell and has more surface area. This study investigates the effect of shading on several arrangements of towers (electrodes) on a 3D organic photovoltaic cell. We have developed theoretical model in MATLAB which simulate the shadow effect and characterize the cell geometrically by varying aspect ratio, spacing, size, shape. A Model has been built for several shading profiles to optimize the exposed area for different position of sun. Theoretical analysis of such a different arrangements of towers has also been carried out to explore the possible mechanisms responsible for array degradation.

#435 10:45

**Device Physics for New Generation of 3D Organic Photovoltaic Cells**

Anurag Kaushik, Electrical Engineering (M)  
Samuel Kassegne, Mechanical Engineering

This research develops a fundamental understanding of charge transport and charge recombination physics in a new ‘all-polymer’ photovoltaic device with a large array of tall post-shaped carbon-based electrodes. The proposal introduces a number of novel approaches previously unexplored. These include (i) new 3D architecture of organic PV cells with organic photoactive component as well as 3D carbon-based charge collectors with decreased diffusion length and increased light absorption, (ii) fundamental physics and electrochemistry of exciton transport, charge transfer mechanism, and charge recombination in all-polymer PV technology, (iii) tailored/optimized organic-organic interface for better and controlled charge transfer mechanism that could translate to energy conversion efficiencies of 10% and more, (iv) new carbon fabrication processes specifically developed for PV applications, and (v) large electrode surface area due to array of post-shaped electrodes. This proposed application essentially takes the technology of Organic-MEMS one step further to a new research area where the unique advantages of carbon coupled with pattern ability through micro and nanofabrication technologies offer a unique opportunity for meshing it with organic PV cell technology. The ensuing most fundamental significance enabled by this marriage of two technologies is the 3D architecture involving high aspect-ratio carbon posts where the diffusion length for charge carriers is minimized while offering large enough optical depth for absorbing incident light. This further translates to the following significant contributions of this research: (i) development of fundamental physics and electrochemistry of exciton transport, charge transfer mechanism, and charge recombination in all-polymer PV technology (ii) batch-processing based economical fabrication that could make All-Poly-PV economically competitive by lowering installation costs, and (iii) tailored efficiency because carbon is very responsive to surface treatment for enhanced charge transfer and transport.
#436 11:00

**Thermodynamic Cycles for Small Particle Heat Exchange Receivers Used in Concentrating Solar Power Plants**

Kyle Kitzmiller, Mechanical Engineering (M)
Fletcher Miller, Mechanical Engineering

Gas-cooled solar receivers for concentrating solar power plants are capable of providing high temperature, pressurized gas for electrical power generation via a Brayton cycle. Of the two major types of gas cooled receivers (tube and volumetric), volumetric receivers offer potential for higher efficiencies. In volumetric receivers, solar energy is absorbed within a volume, rather than on a surface. The absorption volume can be filled with ceramic foam, wires, or particles to act as the absorbing medium. The current study models thermodynamic cycles incorporating one type of volumetric receiver, called a small particle heat exchange receiver. In this receiver, sub-micron sized particles absorb solar radiation, and transfer this energy as heat to a surrounding fluid. The theoretical efficiency of this receiver approaches 90%. Several thermodynamic cycles have been investigated, each of which is motivated by key physical considerations in volumetric receivers. The cyclic efficiencies are determined by a new MATLAB code based on previous Brayton cycle modeling conducted by Sandia National Laboratories. The code has been significantly modified to allow for novel, hybridized cycles incorporating solar receivers along with traditional combustors. The modeling accounts for pressure drops and temperature losses in various components, and parameters such as the turbine inlet temperature and pressure ratio are easily modified to run parametric cases. The performance of a gas-cooled solar receiver is largely a function of its ability to provide process gas at a consistent temperature or pressure, regardless of variations in solar flux, which can vary due to cloud transients or apparent sun motion throughout the day. Consistent output can be ensured by combusting fuel within the cycle, effectively making a solar/fossil fuel hybrid system. Several schemes for hybridization with natural gas are considered here, including externally fired concepts and combined receiver/combustor units. Because the efficiencies of hybridized cycles are a function of the solar thermal input, the part load thermodynamic behavior of these cycles is discussed. Finally, a brief report of economic costs inherent to solar powered gas turbine engines is given. Possibilities for the future of solar power gas turbine power plants are discussed, with key issues regarding thermal storage techniques.

#437 11:15

**Radiation Heat Transfer Simulation of a Small Particle Solar Receiver using the Monte Carlo Method**

Steven Ruther, Mechanical Engineering (M)
Fletcher Miller, Mechanical Engineering

High temperature gas-particle central solar receivers have the potential to operate at much higher efficiencies than other solar power tower technologies. The increased efficiency is primarily due to the working fluid absorbing the concentrated solar flux directly. The gas-particle central receiver’s working fluid is a gas with entrained, smoke-like carbon particles. The particles and the gas can be considered a single phase with the gas at the same temperature as the carbon particles that are absorbing the solar flux. To take full advantage of the direct absorption technology, reflected, out-scattered, and emissive losses need to be minimized. A numerical investigation into these losses was performed for a simplified cylindrical receiver with an ideal window for the incoming solar flux. The highly accurate Monte Carlo Ray Trace (MCRT) method was used to model the radiation heat transfer. An MCRT code was developed in FORTRAN which has the capacity to accommodate spectral wall and particle properties along with anisotropic scattering by the particles. The MCRT program provides a source term to the energy equation; this in-turn, produces a new temperature field for the MCRT program. This iteration repeats until convergence is reached for a steady temperature field. The energy equation was solved using a finite volume method assuming a simplified velocity field and an effective conductivity that can account for turbulent flow conditions. The numerical model will be used to investigate the effect of particle concentration, the cylindrical receiver’s aspect ratio, and how the receiver’s interior surface radiative-properties affect the efficiency of the receiver. The direction of flow through the receiver will also be considered as the gas-particle mixture can either flow with or against the incoming solar flux. These parameters stand to reduce reflected and out-scattered as well as infrared emitted losses. The reduction of these losses can further improve the efficiency of the already highly efficient gas-particle solar receiver.

#438 11:30

**Effect of Sampling Period on Flood Frequency Distributions**

Maryam Kargar, Civil Engineering (M)
Edward Beighley, Civil, Construction and Environmental Engineering

Flooding is a devastating natural hazard that claims many human lives and significantly impacts regional economies each year. Given the magnitude of flooding impacts, significant resources are dedicated to the development of forecasting models for early warning and evacuation planning, construction of flood defenses (levees/dams) to limit flooding, and the design of civil
infrastructure (bridges, culverts, storm sewers) to convey flood flows without failing. In all cases, it is important to understand the potential flooding risk in terms of both recurrence interval and magnitude. Flood frequency analysis is a form of risk analysis used to extrapolate the return periods of floods beyond the gauged record. The technique involves using observed annual peak flow discharge data to calculate statistical information such as mean values, standard deviations, skewness, and recurrence intervals. Since discharge data for most catchments have been collected for periods of time less than 100 years (sample size), the estimation of the design discharge requires a degree of extrapolation. One important question is how the sampling period can affect the results of flood frequency distribution analysis. A related question is whether the data from any sampling period at a given gauging station can be used, when longer periods of records are available for nearby gauges. In this study, total of 18 gauges (more than 70 years of data) spread throughout the Susquehanna River basin (71,000 sq km) were used to answer these questions. Data subsets ranging from 10 years to the total number of years available were created for each gauge. To estimate the flood frequency, the Log Pearson Type III distribution was fit to the logarithms of instantaneous annual peak flows following Bulletin 17B guidelines of the U.S. Interagency Advisory Committee on Water Data. The resulting flood frequencies from these subsets were compared to the results from the entire record at each gauge. Based on this analysis, the minimum number of years required to obtain a reasonable flood frequency distributions were determined for each year (e.g., 1920-2009). These results can be used to determine if other nearby gauges with shorter periods of record are valid for estimating design discharges.

**Impact of Time of Concentration Variability on the Uncertainty of Simulated Flood Discharges**

Courtney Wilson, Civil Engineering (M)

Ed Beighley, Civil, Construction and Environmental Engineering

The purpose of this research is to establish the uncertainty of simulated flood discharges due to the expected variability in Time of Concentration with stream networks derived from a digital elevation model (DEM). Stream networks are approximate from a DEM by assuming the drainage area required to generate a channel. This area is referred to as the threshold area. In practice threshold areas are often selected on the basis of visual similarity between the extracted drainage network and the streams depicted on topographic maps. The hypothesis for this research is that likely variations in threshold area will results in significant uncertainty in simulated flood flows. The sensitivity of peak discharges to the derived channel network was evaluated on watersheds with a range of basin characteristics. Watersheds used in analysis are located in Maryland and are based on a 30-meter DEM. For each watershed, channel networks were extracted for a range of threshold areas. Peak discharges were established using the Natural Resources Conservation Service’s (NRCS) T-55 method. The NRCS method for determining time of concentration is function of overland flow and channel flow. A peak discharge is determined for each channel network in each watershed. Peak discharge is then compared to peaks estimated by alternated methods that rely on other basin factors or measured streamflows. Results show that simulated peak discharges are sensitive to the approximated stream network. The degree of uncertainty in the simulated peak discharge is impacted by other factors including basin slope. Because the channel network directly affects the simulated hydrologic response, care should be taken when selecting the threshold area for generating a stream network.

**Session D-14**

**Oral Presentation: Geography**

Saturday, March 5, 2010, 10:15 am

Location: Quetzalcoatl A

**#440 10:15**

**Forest Fire Severity Mapping using Satellite Imagery and GIS for Dellach, Austria**

Nicole Simons, Geography (D)

Piotr Jankowski, Geography

Wildfires are a natural occurrence in many parts of the world, but in some locations recent changes in climate and population has led to an increase in fire frequency and intensity. Studies of climate change trends in the Austrian Alps have predicted that the risk of wildfires will dramatically increase in the future, making it necessary for emergency management operations (EMOs) to monitor and prevent hazardous wildfire events. EMOs in Austria do not currently have a mechanism for monitoring fire risk, leaving communities vulnerable to the threat of future wildfire. Therefore, locations that are highly susceptible to fire need to be identified in order for EMOs to conduct thorough analyses and create hazard event plans for at-risk areas. Several models and methods have been developed to identify areas vulnerable to wildfire, i.e. the California Department of Forestry and Fire Protections Fire and Resource Assessment Program CDF-FRP Fire Threat Model and FARSITE, though few have been developed for alpine climates. The objective of this research is to develop a mechanism for identifying wildfire risk in Carinthia, Austria. The developed framework is modeled after current fire severity threat identification models and CDF-FRAP fire threat model and integrates available remotely sensed vegetation and elevation data into a geographic information system along with additional information relating to road networks and population. The map
output delineated areas that were at minimal, moderate, and high risk to fire occurrence. Methods explored in this study outline a successful process of wildfire risk mapping in Dellach, Austria.

**#441 10:30**

**Smart Cookies: Gendered Performances of Capitalism in the Girl Scout Cookie Program**

Denise Goerisch, Geography (D)  
Kate Swanson, Geography

For the past 75 years, Girl Scouts have been selling their renowned cookies to family, friends and neighbors in order to raise funds for their troops and local councils. In 2008, the Girl Scouts extended this program to their youngest ranking scouts, the Daisies. Unlike other youth-oriented fundraisers, the Girl Scouts has transformed their annual fundraiser into an educational program, which teaches scouts business and leadership skills such as customer service, marketing, goal-setting and budgeting. Themes of personal success in relation to financial and personal growth are particularly stressed as is the importance of women’s roles as performers of emotional labor within a capitalist society. In this paper, I will explore how the Daisy Cookie program encourages very young girls to perform gendered constructions of capitalism, with the expectation that they ‘become’ practicing capitalists—an expectation that simultaneously reinforces and challenges traditional gender roles in Western capitalist societies. By utilizing Judith Butler’s theories on performativity, I will investigate how this program creates a dynamic space that perpetuates modern constructions of girlhood and capitalism, while also challenging these same dominant ideologies.

**#442 10:45**

**Analyzing Human–Computer Interaction in Online Transportation Planning: Towards a User-centered Design of Participatory Tools**

Martin Swobodzinski, Geography (D)  
Piotr Jankowski, Geography

In fall 2007, residents of the Seattle metropolitan area participated in a 4-week long experiment on participatory transportation planning called Let’s Improve Transportation (LIT). To allow for a structured participatory decision-making process, we designed and implemented an Internet portal that allowed the participants to engage with various deliberative and analytical tools. The interaction of each individual participant was observed and stored as log files on the LIT server. In this presentation, I outline how the human-computer interaction data can be related to human decision-making in the context of transportation planning. Such knowledge is instrumental for a better understanding of the requirements of and expectation towards future participatory systems. Most importantly, it provides a more nuanced understanding of the factors that inform the decision-making of an individual in the context of public participation—away from coarse notions of the so-called public towards empowerment of the individual. I elaborate on the motivation, challenges, and benefits of analyzing human-computer interaction data that was collected throughout the LIT experiment. I reflect on the process of data preparation and discuss the analysis through exploratory data analysis techniques and multivariate statistics. More specifically, I employ sequence alignment analysis in combination with logistic regression as a means to assess the association between individual-level variables and preferences for specific tools. The overall goal of the analysis is to gain an understanding of the relationship between the participant’s socio-demographic and cognitive characteristics and his or her preference for analytical and/or deliberative participatory tools.

**#443 11:00**

**The Geography of Day Labor in the San Diego Metropolitan Area**

Sean Crotty, Geography (D)  
Fernando Bosco, Geography

Informal day labor hiring sites are an increasingly common part of the (sub)urban American landscape, where their highly visible presence often incites conflict between the laborers and the surrounding community. Precious research on day labor markets has been predominantly non-geographic and as a result has paid little attention to the differences between hiring sites as well as the particular place-based planning issues presented by each day labor hiring site. This paper begins to address this problem and illustrate how a focus on the geographic dimensions of day labor as a social and economic phenomenon can inform our understanding of day labor-community conflicts. Day labor conflicts are complex and dynamic, as hiring sites exist in different geographic settings, which involve a diverse group of stakeholders each of whom may view day labor in a different light. It is impossible to address this range of perspectives and sources of conflict quantitatively. Therefore this analysis focuses on three common causes of day labor conflict: traffic and public safety disruptions, racial difference between day laborers and local residents, and class-based difference between day laborers and local residents. In so doing, I develop a methodology for mapping day labor sites, as well as a framework for site classification and analysis.
Exploring the Spatial Resolution Limitations of Satellite Imagery for Slum Detection in Accra, Ghana

Justin Stoler, Geography (D)
John Weeks, Geography

Analysis of remote sensing imagery has the potential for identifying and categorizing slums, but little research has been conducted on how differing spatial resolutions or classification techniques affect the results of this type of analysis. This study assesses the correlation between satellite-derived land cover and census-derived socioeconomic variables in Accra, Ghana to determine whether the relationship between these variables is altered with a change in spatial resolution or scale. An ASTER composite and Landsat TM composite, with spatial resolution of 15 and 30 meters respectively, were used to conduct the comparison. Land cover was classified and converted into percentages for each Enumeration Area in Accra using a sub-pixel modeling classification technique known as spectral mixture analysis (SMA). Correlation and regression analyses were conducted to compare the SMA results to a slum index created from various socio-economic data taken from the Census of Ghana, as well as to data derived from a 2.4 m Quickbird image. The analysis identified a significant link between vegetation fraction and the slum index, however results suggested that this variable alone cannot confidently predict slum presence, although the use of the spatial error model does improve the results. The SMA-derived ASTER data proved to be a sufficient substitute for the QB data when using land cover fractions as a proxy for slum presence, in many instances outperforming the higher resolution data. While SMA might be useful for deriving land cover fractions from ASTER imagery, the SMA-derived TM data did not exhibit strong relationships to the slum index and should not be considered for this type of demographic analysis.

#444 11:15

On the Semantics of Singular Statements in Aristotle

Kevin Lopez, Philosophy (M)
Mark Wheeler, Philosophy

Aristotle appears to endorse the semantical claim that true singular affirmations guarantee the existence of their subjects: ostensible support for this claim can be found at Categories 13b12-35. However, it has frequently been noted that Aristotle shows signs of rejecting this position at De Interpretatione 21a18-33. In this passage it is stated that ‘Homer is’ cannot be inferred from ‘Homer is a poet’ and this, Aristotle says, is because ‘is’ holds accidentally of Homer. One of the questions that will be answered is what exactly Aristotle means by ‘accidentally’. How ought these two texts to be reconciled? First, I take up Michael Wedin’s attempts to explain the hermeneutical inconsistency. Immediately following my criticisms, I provide an interpretation that corrects and develops from Wedin’s position. Wedin expresses a fundamental insight: the De Interpretatione passage concerns rules judgments, are self-verifying and infallible. He avers that “these sort of judgments are self-verifying in an obvious way: making these judgments itself makes them true” infallibly. A second-order judgment is a thought about a thought. This can take the form of propositions such as, “I think water is wet”. Burge claims that it cannot be erroneous in its correspondence to the first-order belief that one thinks water is wet, if one has such a thought. There have been a number of counterarguments to this claim, and responses to these counterarguments. I believe that in the controversy, a relatively simple argument against Burge has been overlooked, which can be demonstrated by a thought experiment. Although Burge maintains the discussion of second-order judgments using the form “I think water is wet”, I shall be discussing it as “I think I think water is wet”, with that representing the second-order judgment and “I think water is wet” representing the first order thought. One possible formulation of the thought experiment can be explained symbolically as follows: Let P₁ be proposition 1, P₂ be proposition 2, Bₘ be the belief of Marty, ¬Bₘ be the disbelief of Marty, S be the said thing, A be lawyer A, B be lawyer B, and Jₘ be the second-order judgment of Marty.

S(A, P₁) \land (Bₘ(P₁)) \land (Jₘ(Bₘ(P₁)))
S(B, P₂) \land (¬Bₘ(P₂)) \land (Jₘ(¬Bₘ(P₂)))
S(A, P₂=P₁) \land (Bₘ(P₂=P₁)) \land (Jₘ(Bₘ(P₂=P₁)))
Therefore, Bₘ(P₁) \land (¬Bₘ(P₁)) \land (Jₘ(Bₘ(P₁))) \land (Jₘ(¬Bₘ(P₁)))
Bₘ(Bₘ) \land (¬Bₘ(P₁)) is impossible
Therefore, Jₘ does not correspond to Bₘ
Therefore, second-order judgments are not infallible.

#447 10:30

Burge, Marty, and Fallibility

Jonathan Hecht, Philosophy (U)
Angelo Corlett, Philosophy

In recent years, a topic of great controversy has been the claim by Tyler Burge that cogito-like judgments, or second-order
of inference that hold between the composition and decomposition of predicates. For example, Aristotle denies that ‘Socrates is a good cobbler’ can be inferred from ‘Socrates is good’ and ‘Socrates is a cobbler’. Furthermore, Wedin makes the valuable observation that the phrase kata sumbebekos has many senses in the Aristotelian corpus and that interpretation of this passage requires the correct determination of which sense is at play. My differences and disagreements with Wedin rest on his reticence at fully exploring the semantics of the problem; my view relies on the distinction between immediate and mediate signification as laid out by Aristotle in De Interpretatione. My presentation explains how only the immediate significance of the statement is under consideration at De Interpretatione 21a18-33 and provides the semantic side of the account to complement Wedin’s remarks on syntax. As a consequence, it will be shown that true singular affirmations do indeed require the existence of their subjects but that the immediate significance of a statement does not itself entail the existence of the subject; only when a statement acts as referring does it necessitate the existence of the subject.”

#448 10:45
Computers Can Know Chinese
Mark Norzagaray, Philosophy (M)
Robert Francescotti, Philosophy

John Searle famously argued that computers cannot possibly think, because computer programs consist entirely of syntactic content and lack semantic content, which thoughts necessarily have. Searle proposed the Chinese room thought-experiment to help illustrate his point. Searle uses the Chinese room to demonstrate that to know a language requires understanding the meanings of words, not merely the syntactic relationships amongst words. However, Searle’s characterization of knowing a language does not accord with ordinary talk about language proficiency. Based on an analysis of ordinary language and common experiences, one can admit the possibility that a machine could know a language and think.

#449 11:00
Aristotle’s Pathe: Full Understanding and Virtuous Behavior
Marisa Diaz-Waian, Philosophy (M)
Mark Wheeler, Philosophy

This presentation considers Charles Starkey’s argument for the necessity of pathe to full understanding and arête as it concerns Aristotle’s theory of emotions. I maintain that while Starkey’s argument for the epistemic significance of pathe is consistent with Aristotle’s views, it is problematic insofar as it is possible to conceive of certain situations wherein full understanding might, in fact, create and/or contribute to significant internal struggle in an agent, thereby removing her from candidacy for arête. As a viable illustration of such a scenario, I offer the example of caregiving and provide three ways in which the Aristotelian texts can account for arête in light of the mixed-affects involved with caring for a loved one and the struggle brought about by such understanding. Ultimately, I suggest the following solutions: (a) the more complex a situation the greater allowable struggle, (b) struggle due to knowledge is acceptable struggle, and (c) the pleasure and pain associated with an act can (potentially) be separated, or spoken of, in different ways. It is my hope that this presentation lands not upon a definitive Aristotelian answer to such a quandary but rather provokes further discussion about how we as individuals can expect to deal with difficult situations virtuously (and gracefully) all things considered.

#450 See Session C-8
#451 See Session C-8

See Session 16 on page 178

Session D-17
Oral Presentation: Communication Devices and Antennas I
Saturday, March 5, 2010, 10:15 am
Location: Chantico

#68 10:15
Investigations of a Four Pole Dielectric Resonator Filter and Circularly-Polarized Dielectric Resonator Antenna for Ku-band Satellite Communications Applications
Joshua Patin, Electrical Engineering (M)
Satish Sharma, Electrical and Computer Engineering

All modern radio and microwave frequency designs utilize antennas and filters, where the radiation and passing of desired signals and rejection of undesired signals is paramount for functionality. Furthermore, small, high Q, low loss filter and highly efficient antenna designs are greatly desired for the front end of any wireless communications device in order to maximize link budget, increase reliability, and reduce size, weight, and power (SWaP). This is especially important for Space and Satellite Communications where long distances, critical reliability, and SWaP footprint are key factors. Dielectric resonators provide a very low loss resonant medium from which to create both filters and antennas. They also provide a miniaturizing capability due to the increased dielectric constant. This research work investigates the utilization of dielectric resonators in both an open-field filter and circularly-polarized antenna for Ku-band applications. A filter and antenna are
designed and optimized at 13 GHz and linked to create a radiating front end design. The filter is a four-pole, iris-coupled bandpass filter operating in TE01 mode, while the antenna is uniquely fed to achieve excellent polarization and impedance bandwidth characteristics. Full wave simulation is used in the design process, and the designs are verified by fabrication.

#69 10:30
Investigations on a Triple (TE_{11}, TM_{01}, TE_{21}) Mode Feedhorn Capable of Providing Scanned Radiation Patterns
Ashish Tuteja, Electrical Engineering (M)  
Satish Sharma, Electrical and Computer Engineering

Feed horn reflector antenna assemblies have been widely used for both satellite communications and Radar applications. In this paper, the authors present investigation results of a triple mode (TE_{11}, TM_{01}, and TE_{21}) feed horn which is capable of providing radiation pattern beam scanning in the range of $\theta = \pm 24^\circ$ in both $\Phi = 0^\circ$ and $90^\circ$ cut planes similar to the case of a conventional phased array antenna. This is achieved by exciting all the three modes simultaneously in proper amplitude and phase. It will also provide multiple phase centers in both the $\Phi = 0^\circ$ and $90^\circ$ cut planes. The simulation design of the horn was performed using finite element method (FEM) based full wave analysis software Ansoft HFSS.

#70 10:45
Improving Radiation Pattern Performance of y-shape Microstrip Patch Antennas by Employing Dielectric Sheet with Metallic Strips
Shiv Varanasi, Electrical Engineering (M)  
Satish Sharma, Electrical Engineering

A microstrip patch antenna is a popular antenna type and is widely used in wireless communications. Its name is attributed to the fact that it consists of a single metal patch suspended over a ground plane. Between patch and ground plane resides a dielectric substrate. In this work we have considered a $\Psi$-shaped patch antenna which has earlier shown a drop in gain towards higher frequency end. Therefore, our aim is to improve gain of the antenna such that 3dB gain beamwidth is similar to the impedance bandwidth. Also cross-polarization is improved over the bandwidth which was high with the original reported patch design. Both impedance and radiation pattern results will be presented during the symposium.

#71 11:00
Design of Frequency Reconfigurable Compact Multiband Quasi-Log Periodic Dipole Array (QLPDA) Antenna for Wireless Communications
David West, Electrical Engineering (M)  
Satish Sharma, Electrical Engineering

The design of a log-periodic dipole array (LPDA) antenna for hand-held wireless communication applications is presented, which provides a multiband and reconfigurable resonant antenna structure with acceptable omnidirectional radiation patterns using an inexpensive manufacturing process and substrate. The LPDA antenna is most commonly characterized as providing a linearly-polarized and directive radiation pattern across a single, wide frequency band. The LPDA structure has long been used for wideband VHF and UHF communication applications. More recently, it has been shown that the LPDA structure can be used in easily manufacturable microstrip designs using standard PCB materials as a substrate for low-cost applications. There is great demand for frequency reconfigurable multiband and compact antennas in modern mobile handheld communication units that can work with arbitrary orientation of the receive wave. This presentation will describe the simulation design of a microstrip quasi-LPDA antenna utilizing RF switches for providing frequency reconfiguration and acceptable omni-directional radiation patterns at the multiple desired bands. Tuning these frequency bands to a specific communication application would allow the antenna designer to ensure that energy radiates in the desired band while attenuating the undesired frequency bands. Full wave analysis has been performed using the Ansoft Corporation’s High Frequency Structure Simulator (HFSS), which is a finite-element-method (FEM) based commercial tool. The antenna will be fabricated and experimentally verified using the facilities available in San Diego State University’s Antenna and Microwave Laboratory (AML).
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