2009 STUDENT RESEARCH SYMPOSIUM

Celebrating the achievements of San Diego State University students in research, scholarship & creative activity

February 27 and 28, 2009
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Map of the Aztec Center is on the inside of the front cover.
February 27, 2009

Dear Colleagues and Guests:

It is with great pleasure I welcome you to San Diego State University’s 2009 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 nearly 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
<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Thursday Afternoon, February 26, 2009</strong></td>
<td>1:00 pm – 4:00 pm  Registration</td>
<td>Montezuma Hall Lounge</td>
</tr>
<tr>
<td>8:00 am – 8:30 am</td>
<td>SRS Opening Remarks/Welcome</td>
<td>Montezuma Hall North</td>
</tr>
<tr>
<td>8:45 am – 12:00 pm</td>
<td>Session A: Poster Presentations</td>
<td>Montezuma Hall South</td>
</tr>
<tr>
<td>8:45 am – 10:15 am</td>
<td>Session A: Oral Presentations</td>
<td>Aztec Center</td>
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<tr>
<td>10:45 am – 12:30 pm</td>
<td>Session A: Oral Presentations</td>
<td>Aztec Center</td>
</tr>
<tr>
<td><strong>Friday Afternoon, February 27, 2009</strong></td>
<td>5:15 pm – 7:00 pm  Session C: Poster Presentations</td>
<td>Montezuma Hall South</td>
</tr>
<tr>
<td><strong>Friday Morning, February 27, 2009</strong></td>
<td>7:00 am – 4:00 pm  Registration</td>
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<tr>
<td>10:45 am – 12:30 pm</td>
<td>Session A: Oral Presentations</td>
<td>Aztec Center</td>
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<tr>
<td><strong>Saturday Morning, February 28, 2009</strong></td>
<td>7:00 am – 11:00 am  Registration</td>
<td>Montezuma Hall Lounge</td>
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<tr>
<td>8:00 am – 9:45 am</td>
<td>Session D: Oral Presentations</td>
<td>Aztec Center</td>
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<tr>
<td>10:15 am – 12:00 pm</td>
<td>Session D - Oral Presentations</td>
<td>Aztec Center</td>
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<tr>
<td><strong>Reception, Aztec Center Courtyard</strong></td>
<td>12:00 pm – 1:15 pm</td>
<td>Montezuma Hall</td>
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<tr>
<td><strong>Keynote Address and Awards Presentation, Montezuma Hall</strong></td>
<td>1:15 pm – 2:30 pm</td>
<td>Montezuma Hall</td>
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</table>
**Thursday, February 26**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Session Type</th>
<th>Session Title</th>
<th>Academic Level</th>
<th>Room Location</th>
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<tbody>
<tr>
<td>1:00</td>
<td>A-1</td>
<td>Poster</td>
<td>Developmental Changes</td>
<td>All levels</td>
<td>Montezuma Hall South</td>
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<tr>
<td></td>
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<td>Cognitive Processes I</td>
<td>Undergraduate and Master's</td>
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<td>Engineering</td>
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<td>Gene Expression</td>
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<td>8:45</td>
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<td>A-3</td>
<td>Oral</td>
<td>American Studies</td>
<td>Master's</td>
<td>Casa Real</td>
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<td>A-5</td>
<td>Oral</td>
<td>Ethics and Consciousness</td>
<td>Undergraduate</td>
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<td>A-6</td>
<td>Oral</td>
<td>Evolutionary Biology and Ecology</td>
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<td>A-7</td>
<td>Oral</td>
<td>Political Philosophy and Literary Criticism</td>
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<td>Culture and Society</td>
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<td></td>
<td>A-12</td>
<td>Oral</td>
<td>Metaphysics and Epistemology</td>
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<td>Astronomy and Physical Sciences</td>
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<td>Oral</td>
<td>Language Learning Disorders and Processing I</td>
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<td>Speech, Language, and Hearing Sciences</td>
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<td>1:00</td>
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<td>Oral</td>
<td>Environmental and Public Health</td>
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<td>Oral</td>
<td>Culture and Health</td>
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<td></td>
<td>B-4</td>
<td>Oral</td>
<td>Exercise and Nutritional Life Sciences</td>
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<td>B-5</td>
<td>Oral</td>
<td>Civil and Environmental Engineering</td>
<td>Master's</td>
<td>Council Chambers</td>
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<td>D-1</td>
<td>Oral</td>
<td>Creative Arts and Writing I</td>
<td>Undergraduate and Master’s</td>
<td>Backdoor</td>
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<td>D-2</td>
<td>Oral</td>
<td>Politics and Campaigns</td>
<td>Undergraduate and Master’s</td>
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<td>Oral</td>
<td>Spiritual Explorations</td>
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<td>Oral</td>
<td>The Wide World of Business I</td>
<td>Undergraduate</td>
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<td>Mexican Studies</td>
<td>Master’s</td>
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<td>Oral</td>
<td>Mechanical Engineering</td>
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<td>D-7</td>
<td>Oral</td>
<td>Applied Mathematics and Physics</td>
<td>Master’s and Doctoral</td>
<td>Quetzalcoatl A</td>
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<td>D-8</td>
<td>Oral</td>
<td>Learning Approaches in STEM Curriculum</td>
<td>Master’s and Doctoral</td>
<td>Quetzalcoatl B</td>
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<tr>
<td>10:15</td>
<td>D-9</td>
<td>Oral</td>
<td>Creative Arts and Writing II</td>
<td>Undergraduate and Master’s</td>
<td>Backdoor</td>
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<td>D-10</td>
<td>Oral</td>
<td>Biochemical and Physiological Life Sciences</td>
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<td></td>
<td>D-11</td>
<td>Oral</td>
<td>Cultural Influences and Public Health</td>
<td>Doctoral</td>
<td>Casa Real</td>
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<td></td>
<td>D-12</td>
<td>Oral</td>
<td>The Wide World of Business II</td>
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<td>D-13</td>
<td>Oral</td>
<td>Community Perspectives</td>
<td>Master’s</td>
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<td>D-14</td>
<td>Oral</td>
<td>Electrical Engineering</td>
<td>Master’s</td>
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<td></td>
<td>D-15</td>
<td>Oral</td>
<td>Culture and Health II</td>
<td>Master’s</td>
<td>Quetzalcoatl B</td>
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</table>

**Saturday, February 28**

**7:00 – 11:00**  
**Registration**  
**Montezuma Hall Lounge**

**12:00**  
**Reception, Keynote Address and Awards Presentation**  
**Aztec Center Courtyard and Montezuma Hall**
Dr. Exequiel Ezcurra is a world-renowned ecologist, a cherished teacher and mentor. He is currently professor of plant ecology in UC Riverside’s Department of Botany and Plant Ecology, and is the Director of the University of California Institute for Mexico and the United States (UC MEXUS).

Born in Argentina, Dr. Ezcurra spent his childhood in Mexico, and earned his master’s and doctoral degrees in plant ecology from the University College of North Wales, Bangor. He is widely published; he wrote and narrated the award winning nature film Ocean Oasis; he has received numerous academic awards.

In addition to his academic accomplishments, Dr. Ezcurra has been a powerful force for biodiversity conservation in Mexico and internationally, having helped to establish numerous biological reserves and having served in Mexico’s federal government both as the director general of natural resources and as the president of the National Institute of Ecology.

Dr. Ezcurra is no stranger to San Diego. Before joining UC MEXUS, he directed the Biodiversity Research Center of the Californias at the San Diego Natural History Museum. He will talk today about his recent work on dynamics, seabird demography, and sardine fisheries, using this as a means to discuss what it means to lead a life devoted to academic research.
Awards will be presented at the Reception on Saturday, February 28, to recognize the most outstanding presentations of research, scholarship, and creative activity at the Student Research Symposium. These are:

**President’s Award**
Ten President’s Awards of $500 each will be given for the most outstanding oral presentations. 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, Social, Behavioral and Educational Studies; Creative and Performing Arts—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 May 1–2 at CSU Los Angeles.

**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. In addition, Dean’s Awards will be presented to two undergraduate students.

**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, February 28
The Awards Reception is open to all student presenters, mentors, and judges.

Welcome
Thomas R. Scott, Vice President for Research

Keynote Address
Dr. Exequiel Ezcurra, Director UC-MEXUS

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
Geoffrey Chase, Division of Undergraduate Studies

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, February 27

#### Session A-1
**Poster: Developmental Changes**  
Friday, February 27, 2009, 8:45 am – 10:15 am  
Location: Montezuma Hall South

<table>
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<tr>
<th>Poster #</th>
<th>Time</th>
<th>Title</th>
<th>Author(s)</th>
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<tbody>
<tr>
<td>1</td>
<td>8:45-10:15 am</td>
<td><strong>FMRI Activation and Olfactory Cross-modal Recognition Memory Performance in Older Adults</strong></td>
<td>Lori Haase, Psychology</td>
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<tr>
<td>2</td>
<td>8:45-10:15 am</td>
<td><strong>Functional Connectivity of Olfactory Processing during a Hedonic Evaluation Task in Young and Older Adults</strong></td>
<td>Erin Green, Psychology</td>
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<tr>
<td>3</td>
<td>8:45-10:15 am</td>
<td><strong>Sleep Patterns Before, During, and After Military Combat Deployment in Support of the Wars in Iraq and Afghanistan</strong></td>
<td>Amber Seelig, Public Health</td>
</tr>
<tr>
<td>4</td>
<td>8:45-10:15 am</td>
<td><strong>Effects of Aging on Temporal Order Memory in Rats</strong></td>
<td>Erin Hauser, Psychology</td>
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<tr>
<td>5</td>
<td>8:45-10:15 am</td>
<td><strong>ApoE Status and Differences in Olfactory Detection Across the Lifespan</strong></td>
<td>Krystin Corby, Psychology</td>
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<td>6</td>
<td>8:45-10:15 am</td>
<td><strong>Age-related Changes in Visual Pattern Separation</strong></td>
<td>Chelsea Toner, Psychology</td>
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<tr>
<td>7</td>
<td>8:45-10:15 am</td>
<td><strong>An Investigation of Emotional Enhancement of Memory For Faces And Words In Non-Demented Older Adults</strong></td>
<td>Shea N. Gluhm, Psychology</td>
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<td>8</td>
<td>8:45-10:15 am</td>
<td><strong>Age-related Deficits in Temporal Order Memory in Non-Demented Older Adults</strong></td>
<td>Anastacia C. Tobin, Psychology</td>
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<td>9</td>
<td>8:45-10:15 am</td>
<td><strong>Olfactory Abilities in Alzheimer’s Disease</strong></td>
<td>Miguel Martin Del Campo, Psychology</td>
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<tr>
<td>10</td>
<td>8:45-10:00 am</td>
<td><strong>Comparison of Olfactory P3 Latencies in Young and Older Adults</strong></td>
<td>Roberto Zamora, Psychology</td>
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#### Session A-1
**Poster: Cognitive Process I**  
Friday, February 27, 2009, 8:45 am – 10:15 am  
Location: Montezuma Hall South

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<tr>
<td>11</td>
<td>8:45-10:15 am</td>
<td><strong>Assessing the Validity of the 50-item IPIP Five-factor Model Measure</strong></td>
<td>Lindsay Palmer, Psychology</td>
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<tr>
<td>12</td>
<td>8:45-10:15 am</td>
<td><strong>Can Preschoolers Tell a Story?</strong></td>
<td>Anna Fitzhugh, Psychology</td>
</tr>
<tr>
<td>13</td>
<td>8:45-10:15 am</td>
<td><strong>Predicting Future Stock Success: Company Name Complexity, Processing Fluency, and Consumer Confidence</strong></td>
<td>Carly S. Hennessy, Psychology</td>
</tr>
<tr>
<td>14</td>
<td>8:45-10:15 am</td>
<td><strong>Effect of Static Versus Dynamic Images on Recall</strong></td>
<td>Sara Kazemi, Psychology</td>
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<tr>
<td>15</td>
<td>8:45-10:15 am</td>
<td><strong>Indexing Cognitive Control Processes Using Event-related Potential</strong></td>
<td>Lacy A. Olson, Psychology</td>
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<tr>
<td>16</td>
<td>8:45-10:15 am</td>
<td><strong>To Tell or Not to Tell?: Pointing Out Others Embarrassments</strong></td>
<td>Christopher Fowler, Psychology</td>
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<tr>
<td>17</td>
<td>8:45-10:15 am</td>
<td><strong>The Effects of Coworker Relationships on Counterproductive Workplace Behaviors</strong></td>
<td>Morgan Da Costa, Psychology</td>
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#### Session A-1
**Poster: Astronomy**  
Friday, February 27, 2009, 8:45 am – 10:15 am  
Location: Montezuma Hall South

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<tr>
<td>18</td>
<td>8:45-10:15 am</td>
<td><strong>Refining the Neutron Star Mass Determination in Six Eclipsing X-ray Pulsar Binaries</strong></td>
<td>Meredith Rawls, Astronomy</td>
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</table>
19 Poster #19 8:45-10:15 am
*A New Calibration of the Tully-Fisher Relation and an Estimate of Hubble’s Constant*
Kyra Bostroem, Astronomy

20 Poster #20 8:45-10:15 am
*Distances to Type II-P Supernovae from the Caltech Core-Collapse Project*
Jesus Enriquez, Astronomy

21 Poster #21 8:45-10:15 am
*On the Progenitor of Supernova 1999em*
Paul Nied, Astronomy

Session A-1
Poster: Engineering
Friday, February 27, 2009, 9:30 am – 11:00 am
Location: Montezuma Hall South

22 Poster #22 9:30-11:00 am
*Modeling Hilly Urban Canopy Using Immersed Boundary Method in Large Eddy Simulation*
Long Sun, Mechanical Engineering

23 Poster #23 9:30-11:00 am
*Effect of Die Shape on Spark Plasma Sintering of Alumina*
Evan Khaleghi, Mechanical Engineering

24 Poster #24 9:30-11:00 am
*Mobile Node Tethering using Self-organizing Ad-hoc Wireless Network*
Vaibhav Nagarnaik, Electrical Engineering

25 Poster #25 9:30-11:00 am
*Computation of a Normal Shock Running into a Cloud of Particles*
Thomas Dittmann, Aerospace Engineering

26 Poster #26 9:30-11:00 am
*Expansive Soils*
Laura Adona, Civil Engineering

27 Poster #27 9:30-11:00 am
*Biomimetic Design of a Flexible Airfoil*
Joseph Marrocco, Aerospace Engineering

Session A-1
Poster: Gene Expression
Friday, February 27, 2009, 9:30 am – 11:00 am
Location: Montezuma Hall South

28 Poster #28 9:30-11:00 am
*Linguistic Analysis of Unknown Metagenomic Sequence Data*
Victor Seguritan, Biology

29 Poster #29 9:30-11:00 am
*Regulation of Gene Expression by the microRNA miR-124 in the Developing Nervous System of C.intestinalis*
Jerry Chen, Biology

30 Poster #30 9:30-11:00 am
*Combining In Vivo and In Silico Screening for Protein Stability*
Nesreen H. Barakat, Chemistry

31 Poster #31 9:30-11:00 am
*Correlating Genotype to Phenotype in Bacterial Strains.*
Katelyn McNair, Biology

32 Poster #32 9:30-11:00 am
*New Complexes For Potential Uses in Environmental and Biomedical Applications*
Marcel Hetu, Chemistry

33 Poster #33 9:30-11:00 am
*Cytosolic Free Calcium Regulation During Contraction of the Neonatal Cardiac Cell: Exploration Using Gene Silencing Methods*
Fiyinfoluwa K. Ani, Biology

34 Poster #34 9:30-11:00 am
*Level of Gene Expression in Neonatal And Adult Cardiocytes Calcium-pathway Due to Rosiglitazone Treatment*
Kirubel Gebresenbet, Biology

35 Poster #35 9:30-11:00 am
*Visualized Microbial Genetic Diversity of the Line Islands*
Nicholas Celms, Computer Science

36 Poster #36 9:30-11:00 am
*Gene Expression Profiles Between Wild-type And p53-knockdown/K-RAS-mutation HBEC Cell Lines after Fe Particle Radiation*
Denise Buenrostro, Biology
37  Poster #37  9:30-11:00 am
Changing Targeted Genes on Episomes through the use of Phage Recombination Proteins in Attempt to Improve Upon an Existing In Vivo Screen for Protein Stability
Brandon Kim, Biology

38  Poster #38  9:30-11:00 am
The Dominant-negative Effect of Derlin-3
Matthew San Pedro, Biology

Session A-1
Poster: Bilingual Communication
Friday, February 27, 2009, 10:15 am – 11:45 am
Location: Montezuma Hall South

39  Poster #39  10:15-11:45 am
Monolinguals and Bilinguals Ability to Detect and Resolve Ambiguity During Auditory Comprehension: Evidence From Gaze Shifts
Szu-hsien Ko, Speech, Language, and Hearing Sciences

40  Poster #40  10:15-11:45 am
A Consideration of Language Profiles, Demographic Data, & CELD-T Scores of Children Learning English as a Second Language
Stephanie A. Burgener, Speech, Language, and Hearing Sciences

41  Poster #41  10:15-11:45 am
Past Tense Marking in Children Learning English as a Second Language: Implications of Similarities with Specific Language Impairment
Brittni Weaver, Speech, Language, and Hearing Sciences

42  Poster #42  10:15-11:45 am
Typological Organization of Phonetic Inventories of English- and Spanish-speaking Children
Mary Orton, Speech, Language, and Hearing Sciences

44  Poster #44  10:15-11:45 am
Alternative Assessment of Language in Bilingual Populations
Kylie Puckett, Speech, Language, and Hearing Sciences

45  Poster #45  10:15-11:45 am
Spoken and Written Language of English Language Learners
Katherine Delgadillo, Speech, Language, and Hearing Sciences

46  Poster #46  10:15-11:45 am
Attitudes About Optimism Among Vietnamese American Bilinguals: Evidence from a Cultural Frame Switching Experiment
My Le, Psychology

Session A-1
Poster: Biomechanical and Mechanical Engineering
Friday, February 27, 2009, 10:15 am – 11:45 am
Location: Montezuma Hall South

47  Poster #47  10:15-11:45 am
Computational Mechanics and Biomechanics
Richard Oka, Mechanical Engineering

48  Poster #48  10:15-11:45 am
Sharp Biological Materials
Yen-Shan Lin, Mechanical Engineering

50  Poster #50  10:15-11:45 am
Measurement of Fluid Mechanics of a Simulated LVAD Patient
Gail Samaroo, Bioengineering

51  Poster #51  10:15-11:45 am
A Finite Element Model of the Aortic Valve of LVAD Patients
Mrunalini A. Joshi, Bioengineering

52  Poster #52  10:15-11:45 am
Effect of Leaflet Fusion on the Aortic Valve Biomechanics of LVAD patients.
Latha Ganesan, Mechanical Engineering

Session A-1
Poster: Adolescent Development
Friday, February 27, 2009, 10:15 am – 11:45 am
Location: Montezuma Hall South

53  Poster #53  10:15-11:45 am
Individual, Family, Peer, and Community Factors Associated with Teen Relationship Violence
Manuel Angeles, Public Health

54  Poster #54  10:15-11:45 am
A Theory Based Intervention for Teen Relationship Violence
Tiffany Campbell, Child and Family Development
55 Poster #55 10:15-11:45 am
Developmental Differences between Maternal Authoritarian Parenting and Depression Among Adolescents
McKenzie Lewis, Psychology

56 Poster #56 10:15-11:45 am
Depression, Parental Behavior, Adolescent Dating Violence Perpetration: A Mediation Model
Amelia Weldon, Psychology

57 Poster #57 10:15-11:45 am
The Importance of Timing and Typology in Relations Between Childhood Maltreatment and Early Adolescent Aggression and Delinquency
Danita Wynes, Psychology

58 Poster #58 10:15-11:45 am
Influence of Childhood Family Conflict on Early Adulthood Development
Cara Holt, Psychology

59 Poster #59 10:15-11:45 am
Depression as a Mediator Between Anxious/Ambivalent Attachment and Perpetration of Teen Relationship Violence
Neri Martinez, Psychology

Session A-2
Oral Presentation: Microbial Biology
Friday, February 27, 2009, 8:45 am – 10:15 am
Location: Calmecac

60 8:45 am
Analyzing Information Content in Microbial Genome and Metagenome Sequences
Sajia Akhter, Computer Science

61 9:00 am
Antimicrobial Activity of DNA Repair Inhibitory Peptides
Ilham Naili, Biology

62 9:15 am
A Unifying Framework for the Complex Regional Dynamics of Multi-serotype Dengue Virus Transmission in Thailand
Karen Campbell, Mathematics and Statistics

63 9:30 am
iCRE-CVB3: A Molecular Reporter Virus to Identify Sites of Persistent Coxsackievirus Infection
Ross Rhoades, Microbiology

64 9:45 am
Insertion of EGFP between the Capping and Methylase Domains of Vesicular Stomatitis Virus L Protein Does Not Abolish Polymerase Functions or Virus Growth
John Ruedas, Biology

65 10:00 am
Got Allergies?
Scott Robinson, Biology

66 8:45 am
Lunar Dissent: An Exposé of American Antipathy Toward Landing Men on the Moon
George Aleman III, History

67 9:00 am
The American Culture of Interaction: One Nation, Under God
Dennis Beesley, History

68 9:15 am
The Battle of Gettysburg in American Memory
Scott Shapiro, History

69 9:30 am
Women of the War: How Different From Each Other Were Northern and Southern Women?
Amy Stapleton-Ohton, History

70 9:45 am
Early Sino-Spanish Relations in the Philippines, 1565-1600
Andrew Peterson, History

71 10:00 am
Erasmism in America
Juan Carlos Moraga Vidal, Spanish
Session A-4
Oral Presentation: Cognitive Processes II
Friday, February 27, 2009, 8:45 am – 10:15 am
Location: Chantico

72 8:45 am
*Investigating the Development of the Corticospinal Tracts after Early Unilateral Brain Injury: A Diffusion Tensor Imaging Study*
Shauna Geraghty, Psychology

73 9:00 am
*Cognitive Sex Differences in Trajectory Prediction Task*
Brian R. Adams, Psychology

74 9:15 am
*Sensory Organization and Postural Control in Preclinical Huntington’s Disease*
Danielle Salomonczyk, Psychology

75 9:30 am
*Temporal Order Memory Deficits in Preclinical Huntington’s Disease*
Eva Pirogovsky, Psychology

Session A-5
Oral Presentation: Ethics and Consciousness
Friday, February 27, 2009, 8:45 am – 10:15 am
Location: Council Chambers

76 8:45 am
*Hidden Commonality: a Comparison of Buddhist Consciousness and the Gospel of Thomas*
Matt Jakstis, Philosophy

77 9:00 am
*All the Snow on the Mountain*
Stephen Roberts, Philosophy

78 9:15 am
*Thomistic High-Brain Death*
Daniel Linsenbardt, Philosophy

79 9:30 am
*An Interdisciplinary Conservation Project Regarding the Tawi Tawi and Sabah Provinces.*
Dervla O’Leary, Asia Pacific Studies

Session A-6
Oral Presentation: Evolutionary Biology and Ecology
Friday, February 27, 2009, 8:45 am – 10:15 am
Location: Presidential Suite

80 8:45 am
*Phylogeography of the Ornate Tree Lizard Urosaurus ornatus: A Multilocus Approach*
Anny Peralta, Biology

81 9:00 am
*Evolutionary History of Suction Feeding in Cetaceans: a Phylogenetic Approach*
Cassie Johnston, Biology

82 9:15 am
*Species Limits in Elgaria Multicarinata: Testing Mitochondrial Clades with Multilocus Nuclear Data*
Angela Marion, Biology

83 9:30 am
*The Regeneration of Pine at Cuyamaca Rancho State Park Five Years after the Cedar Fire*
Erin Bergman, Biology

84 9:45 am
*Human Activity on Coral Reefs Encourages Pathogenic Vibrio Species*
Robert Schmieder, Computer Science

Session A-7
Oral Presentation:
Political Philosophy and Literary Criticism
Friday, February 27, 2009, 8:45 am – 10:15 am
Location: Quetzalcoatl A

85 8:45 am
*Principles of Just Humanitarian Intervention*
Timothy Sparks, Philosophy

86 9:00 am
*The Problems and Political Context of John Dewey’s Pragmatic Method*
Matthew Morley, Political Science

87 9:15 am
*Defending Rawl’s Against Habermas*
Mark Norzagaray, Philosophy
| Session A-8 | Oral Presentation: Culture and Society  
Friday, February 27, 2009, 10:45 am – 12:30 pm  
Location: Backdoor |
| --- | --- |
| 88 9:30 am | *All Paths Lead Back Home: Dialectal Issues in English Composition*  
Aaron Little, Rhetoric and Writing |
| 89 9:45 am | *Funny Paper*  
Lisa Hemminger, English |
| 90 10:00 am | *Isolation and the Short Stories of Raymond Carver*  
Toby Hopp, Journalism and Media Studies |
| 91 10:45 am | *Effectiveness of Ethics-based Sexual Harassment Awareness Training*  
Heather Yamashita, Psychology |
| 92 11:00 am | *Relationship Among Nursing Workforce Factors and Nurse Caring*  
Paige Lee Burtson, Nursing |
| 93 11:15 am | *Public but Opaque: The Problem of Tracking Homicide Charging in a California County*  
Larissa Tabin, Criminal Justice Administration |
| 94 11:30 am | *Jail Pedagogy: Teaching Prisoners*  
Jerry Flores, Sociology |

| Session A-9 | Oral Presentation: Protein Structure and Function  
Friday, February 27, 2009, 10:45 am – 12:30 pm  
Location: Calmecac |
| --- | --- |
| 95 10:45 am | *Kinetics and Inhibition of Sphingomyelinases*  
Mark Villaluz, Chemistry |
| 96 11:00 am | *Structural Studies of IKKbeta Complexed with IkBalpha/p50/65*  
Arthur Hauenstein, Chemistry |

| Session A-10 | Oral Presentation: Literary Analysis  
Friday, February 27, 2009, 10:45 am – 12:30 pm  
Location: Casa Real |
| --- | --- |
| 97 11:15 am | *Novel Inhibition of ITK Activity and Th2-cell Function*  
David Guimond, Biology |
| 98 11:30 am | *Biochemical Studies on IkappaBzeta as a Novel Transcriptional Regulator of NF-kappaB*  
Norman Zhu, Chemistry |

| Session A-11 | Oral Presentation: Applied Mathematics and Civil Engineering  
Friday, February 27, 2009, 10:45 am – 12:30 pm  
Location: Chantico |
| --- | --- |
| 49 10:45 am | *Image Processing of Novel All-Polymer High Collection Efficiency Biochip for Pathogen Detection*  
Namratha Tata, Mechanical Engineering |
108 11:00 am
On Short Minimal Zero Sequences
Ryan Moore, Mathematics and Statistics

109 11:15 am
Monitoring Particulate Crushing with Acoustic Emission (AE)
Johan Gallay, Civil Engineering

110 11:30 am
Waved Based Evaluation of Arching in Constrained Granular Packs.
Vasiliki Karanikola, Civil Engineering

111 11:45 am
Dependency of Flood Frequency Distributions on Sampling Period in the Susquehanna Basin
Maryam Kargar, Civil Engineering

112 12:00 pm
Development of a Best Management Practice for Reducing Nutrients and Runoff from Nurseries in Southern California
Anna Wernet, Civil Engineering

113 12:15 pm
Verification and Validation of Response Predictions for High Velocity Impact on Laminated Composite Plates
Pablo Salas, Aerospace Engineering

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Session A-12
Oral Presentation: Metaphysics and Epistemology
Friday, February 27, 2009, 10:45 am – 12:30 pm
Location: Council Chambers

114 10:45 am
Descartes' the Yogi
Claire Glattly, Philosophy

115 11:00 am
Language, Cognition and Externality
Jolie Colby, Philosophy

116 11:15 am
Spinoza on Non-conceptual Content
Leonard Pollard, Philosophy

117 11:30 am
Dissolving the Hard Problem of Consciousness
Luis Favela, Philosophy

119 11:45 am
Goldman's Social Epistemology
Michael Jenkins, Philosophy

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Session A-13
Oral Presentation: Astronomy and Physical Sciences
Friday, February 27, 2009, 10:45 am – 12:30 pm
Location: Presidential Suite

120 10:45 am
The Biomedical Imaging Potential of Colloidal Indium Nitride Quantum Dots
Jean Werle, Chemistry

121 11:00 am
The Search for Bright Variable Stars in Open Cluster NGC 6819.
Antonio Talamantes, Astronomy

122 11:15 am
Cyclic Voltammetry of Tetramethylphenylenediamine in Organic Solvents: A Simple Redox Couple that is Not So Simple
Sonia Maciejewski, Chemistry

123 11:30 am
Variational Study of Neutron Star Properties
Oliver Hamil, Physics

124 11:45 am
The Cosmological Constant and Compact Stars
Omair Zubairi, Physics

125 12:00 pm
Nuclear Equation of State and Neutron Stars
Melinda Toth, Physics

126 12:15 pm
Cooling of Superconducting Strange Stars
Rodrigo Negreiros, Physics

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Session A-14
Oral Presentation: Perspectives on Space and Time
Friday, February 27, 2009, 10:45 am – 12:30 pm
Location: Quetzalcoatl A

127 10:45 am
Experiencing ‘Green’ through Film
Emily Powers, Geography

129 11:00 am
Time on Social Networking Sites
Galina Shmeleva, Communication
Session A-15
Oral Presentation:
Language Learning Disorders and Processing I
Friday, February 27, 2009, 10:45 am – 12:30 pm
Location: Quetzalcoatl B

130 11:15 am
*Media Effects Before, During, and After Natural Disasters*
Xiaosi Wu, Journalism and Media Studies

131 11:30 am
*A Spatiotemporal Analysis of Ambient Fine Particulate Air Pollution Using the Bayesian Maximum Entropy Model*
Wyson Pang, Geography

132 11:45 am
*Exploring Land Use Change in Southern Nepal Using an Agent-based Model*
Alex Zvoleff, Geography

133 12:00 pm
*A Framework for Comparative Space-time Analysis*
Xinyue Ye, Geography

Session B-1
Poster Presentation:
Computational Sciences, Mathematics, and Statistics
Friday, February 27, 2009, 1:00 – 2:30 pm
Location: Montezuma Hall South

139 Poster #1 1:00-2:30 pm
*Data Mining Analysis of HIV-1 Protease Crystal Structures*
Gene Ko, Computational Science

140 Poster #2 1:00-2:30 pm
*Ultracold Atom Interferometry in a Circular Waveguide*
Martin Kandes, Physics

141 Poster #3 1:00-2:30 pm
*A SOA for Science Applications in Cyberinfrastructure*
Carny Cheng, Computer Science

142 Poster #4 1:00-2:30 pm
*Statistical Inference of the Warmest Months of the Contiguous U.S. Since 1895*
Christine Lee, Statistics

143 Poster #5 1:00-2:30 pm
*Soliton Transport through a Ratcheting Potential*
Max Riemann, Applied Mathematics

144 Poster #6 1:00-2:30 pm
*Solutions to the Forced Korteweg-de Vries Equation*
Aaron Donahue, Mathematics

145 Poster #7 1:00-2:30 pm
*A Statistical Analysis on the Sampling Errors of the Alberta Acid Deposition Networks*
Markus Bantle, Mathematics

146 Poster #8 1:00-2:30 pm
*Computational Investigation and Kinetics Thermochemistry of TTQ Cofactor*
Belynda Sanders, Chemistry

Session B-1
Poster Presentation: Health Care
Friday, February 27, 2009, 1:00 – 2:30 pm
Location: Montezuma Hall South

148 Poster #10 1:00-2:30 pm
*The Development of a Vegan, Gluten-free Cheesecake as a Healthier Alternative to Traditional Cheesecake*
Carrie Flack, Exercise and Nutritional Science
| Poster #11 | 1:00-2:30 pm | Health Disparities as a Function of Insurance, Health Literacy, and Subjective Social Status  
Kim Nhat Nguyen, Psychology |
| Poster #12 | 1:00-2:30 pm | Healthcare Policy Description and Political Support  
Geoffrey Wetherell, Psychology |
| Poster #13 | 1:00-2:30 pm | Match Between Parent-reported Target Problems and Child's Diagnoses: Does Socioeconomic Status Matter?  
Eren Clark, Psychology |
| Poster #14 | 1:00-2:30 pm | Demographic Characteristics as Predictors of the Likelihood of Hiring a Health Care Advocate among Two Age Groups  
Nancy E. Calderón, Psychology |
| Poster #15 | 1:00-2:30 pm | The Effects of Social Support on the Likelihood of Hiring a Health Advocate  
Vanessa L. Spiteri, Psychology |
| Poster #16 | 1:00-2:30 pm | The Role of Individual and Health-related Factors in Ratings of Healthcare Confidence  
Lauren K. Allbee, Psychology |
| Poster #17 | 1:00-2:30 pm | Does Gender Matter? The Relationship between Chronic Stress Type and Risk for Heart Disease.  
Smriti Shivpuri, Psychology |
| Poster #18 | 1:00-2:30 pm | Dads Club Photovoice Project: A Snapshot of Fathers & Community in City Heights  
Miriah de Matos, Public Health |
| Poster #19 | 1:00-2:30 pm | Music and Emotions in Williams Syndrome  
Philip Lai, Psychology |
| Poster #20 | 1:00-2:30 pm | Grandparent and Grandchild Relationships Across Decades  
Hayley Metz, Psychology |
| Poster #21 | 1:00-2:30 pm | Much Ado About Nothing: Mistaken Perceptions of Font Effects on Anxiety  
Katrina Flores, Psychology |
| Poster #22 | 1:00-2:30 pm | Commuting Couples' Concerns of Infidelity: Gender Differences  
Trevor Cherr, Psychology |

Session B-1
Poster Presentation:
Molecular Biology and Chemistry  
Friday, February 27, 2009, 1:45 – 3:15 pm  
Location: Montezuma Hall South

| Poster #23 | 1:45-3:15 pm | Subsurface Microbiology: Growth of Organisms Recovered from Volcanic Steam Sublimates  
Eyobed Worku, Biology |
| Poster #24 | 1:45-3:15 pm | Coxsackievirus B3 Infection Affects Neurogenesis and Hinders Normal Brain Development  
Chelsea Ruller, Biology |
| Poster #25 | 1:45-3:15 pm | Engineering a Vesicular Stomatitis Virus-based Protein Expression System  
Jimmy Guo, Biology |
| Poster #26 | 1:45-3:15 pm | Expression of Human JCV Polyomavirus VP1 Major Coat Protein  
Patricia Crivello, Biology |
| Poster #27 | 1:45-3:15 pm | Characterizing the Growth Profile of a Mutant Vesicular Stomatitis Virus  
Gloria Felix, Biology |
| Poster #28 | 1:45-3:15 pm | Merkel Cell Polyoma Virus T-antigen-like Protein  
James Salea, Chemistry |
| Poster #29 | 1:45-3:15 pm | In Situ Detection of Aquificales Via 16S rRNA In Situ Hybridization and Electron Microscopy  
Donn Van Deren, Jr., Biology |
Session B-1
Poster Presentation:
Microbial and Molecular Physiology
Friday, February 27, 2009, 1:45 – 3:15 pm
Location: Montezuma Hall South

168 Poster #30 1:45-3:15 pm
*Microbial Complexity in Dental Specimens of Patients with Periodontal Disease: A Pyrosequencing and Phylogenetic Approach.*
Lena van der Stap, Mathematics and Statistics

169 Poster #31 1:45-3:15 pm
*A Non-invasive Method for Measuring Contractility in Cardiocytes*
David Torres Barba, Mathematics and Statistics

170 Poster #32 1:45-3:15 pm
*Ubiquitin Carboxy Hydrolase L3: A Sensor of Protein Stability?*
Mario Navarro, Chemistry

171 Poster #23 1:45-3:15 pm
*A Novel Population of Myeloid Cells Responding to Coxsackievirus Infection in the Neonatal CNS Express a Neural Stem Cell Marker*
Jenna Tabor-Godwin, Biology

172 Poster #34 1:45-3:15 pm
*Role of BslA Adhesin in Bacillus anthracis Infection*
Celia Ebrahimi, Biology

173 Poster #35 1:45-3:15 pm
*Designing a Protein Based Inhibitor of βAmyloid Fibrils*
Aditi Apte, Biology

174 Poster #36 1:45-3:15 pm
*Assessing the Potential Correlation Between Protein Stability and Function*
Youly Ly, Chemistry

175 Poster #37 1:45-3:15 pm
*Using Drosophila as the Model System for the Therapeutic Approach of the Human Disease IBM-3*
Yang Wang, Biology

176 Poster #38 1:45-3:15 pm
*Microbial Diversity in Steam Vent Sublimates*
Courtney Benson, Biology

Session B-1
Poster Presentation: Analytical Chemistry I
Friday, February 27, 2009, 2:30 – 4:00 pm
Location: Montezuma Hall South

177 Poster #39 2:30-4:00 pm
*Multi-photon Laser Wave-mixing Analysis of Proteins in Single Cells*
Donna Sirenski, Chemistry

178 Poster #40 2:30-4:00 pm
*Iron Inducible Protein Expression in Marine Bacteria Closely Associated with Dinoflagellates*
Sukhjinder Singh, Chemistry

179 Poster #41 2:30-4:00 pm
*Computational Study of H Atom Dynamics in Organometallic Complexes*
Amy Arita, Chemistry

180 Poster #42 2:30-4:00 pm
*Towards New Syntheses and Morphologies of Manganese-doped Group III-Nitride Ferromagnetic Semiconductors*
Savannah DeLorenzo, Chemistry

181 Poster #43 2:30-4:00 pm
*Construction of Building Blocks for Gadolinium Chelators*
Andrea Rodriguez, Chemistry

182 Poster #44 2:30-4:00 pm
*A Method of Controlling Morphology of Colloid Silver*
Tung Mai, Chemistry

183 Poster #45 2:30-4:00 pm
*Segmentation of an Aqueous Sample Stream with Perfluorocarbon Liquid in a Microfluidic Device*
Devin Wakefield, Chemistry

184 Poster #46 2:30-4:00 pm
*Very Strong Redox-Dependent Hydrogen Bonding Between a bis-Dimethylaminophenylurea and a Cyclic Diamide*
Karina Kangas, Chemistry
Session B-1
Poster Presentation: Multiculturalism
Friday, February 27, 2009, 2:30 – 4:00 pm
Location: Montezuma Hall South

185 Poster #47 2:30-4:00 pm
*When Implicit Associations are More Aligned with Multiculturalism than Explicit Associations*
Thanhvan Huynh, Psychology

186 Poster #48 2:30-4:00 pm
*Chicano Park*
Adela Lua, Anthropology

187 Poster #49 2:30-4:00 pm
*Cross-cultural Differences in Aggression in a Sport Context*
Kiersten Janjigian, Psychology

188 Poster #50 2:30-4:00 pm
*Psychometric Properties of the English and Spanish Versions of the Powe Fatalism Inventory in Latinas*
Sofie Champassak, Psychology

189 Poster #51 2:30-4:00 pm
*Sexual Satisfaction among Mexican American Couples in the First Year of Marriage*
Elsa Carrasco, Psychology

191 Poster #53 2:30-4:00 pm
*Effects of Youthful Indiscretions on Perceptions of Hispanic and Caucasian College Students*
Sara E. Andrews, Psychology

Session B-1
Poster Presentation:
Speech Language, and Hearing Sciences
Friday, February 27, 2009, 2:30 – 4:00 pm
Location: Montezuma Hall South

192 Poster #54 2:30-4:00 pm
*A Comparison of Hearing Aid Technology for Speech Communication over the Telephone*
Lindsey McMahan, Speech, Language, and Hearing Sciences

193 Poster #55 2:30-4:00 pm
*Role of Neighborhood Density and Phonotactic Probability in Bilingual Speech Production*
Skott Freedman, Speech, Language, and Hearing Sciences

194 Poster #56 2:30-4:00 pm
*Complex Syntax as A Diagnostic Indicator for AAE Speaking Children with SLI*
Sarah Freitag, Speech, Language, and Hearing Sciences

195 Poster #57 2:30-4:00 pm
*Idiomatic Language Comprehension in Preadolescents with Autism Idiomatic Language Comprehension in Preadolescents with Autism*
Stephanie Hubbell, Speech, Language and Hearing Sciences

196 Poster #58 2:30-4:00 pm
*Concrete and Abstract Evidence for Learning an Artificial Grammar*
Elizabeth Wylie, Speech, Language, and Hearing Sciences

197 Poster #59 2:30-4:00 pm
*Effects of Music Exposure on Fine-structure Distortion Product Otoacoustic Emissions*
Jerica Yeilding, Speech, Language, and Hearing Sciences

198 Poster #60 2:30-4:00 pm
*Effects of Contralateral Suppression and Music Exposure on Distortion Product Otoacoustic Emissions*
Melanie Hertan, Speech, Language, and Hearing Sciences

199 Poster #61 2:30-4:00 pm
*Speech Motor Coordination in Adults and Children: Task Effects*
Jessica Magnus, Speech, Language, and Hearing Sciences

99 Poster #62 2:30-4:00 pm
*Peptide inhibitors of Site-specific Recombination*
Marc Rideout, Biology

Session B-2
Oral Presentation:
Environmental and Public Health
Friday, February 27, 2009, 1:00 pm – 2:45 pm
Location: Calmecac

200 1:00 pm
*Conservation Planning for SDSU Property on North Fortuna Mountain*
Ian Cain, Environmental Sciences

201 1:15 pm
*Patterns and Controls of Microbial Activity in the Coastal Sage Scrub Community of Mission Trails Regional Park*
Irene Hale, Biology
202 1:30 pm
Stable Isotope Analysis of a Seagrass Food Web in San Diego Bay
James Farlin, Biology

203 1:45 pm
Community Based Parasitic Screening and Treatment of Sudanese Refugees
Sarah Fredrickson, Public Health

204 2:00 pm
Do Acculturation and Language Preference Affect Responsiveness to Anti-smoking Media Messages? A Study of Individuals of Korean Descent Residing in California
Golnoosh Behrouzian, Journalism and Media Studies

205 2:15 pm
Indoor and Outdoor Air Quality Status of Carbon Concentration of Fine Aerosol in Mumbai City
Abba Joseph, Public Health

206 2:30 pm
Risk Factors for HIV Within the Rwandan Defense Forces
Judith Harverston, Epidemiology

Session B-3
Oral Presentation: Culture and Health I
Friday, February 27, 2009, 1:00 pm – 2:45 pm
Location: Casa Real

207 1:00 pm
How Gender Interacts With The Relationship Between Authoritarian Parenting And Teen Relationship Violence
Ellesse Akre, Psychology

208 1:15 pm
Marital Satisfaction in Commuting Couples: Children Versus No Children
Lauren Dlugosz, Psychology

209 1:30 pm
Collectivism and the Relationship between Social Support and Self-Esteem
Belen Barragan, Psychology

210 1:45 pm
The Most Effective Therapeutic Treatment for Children Suffering from Post Traumatic Stress Disorder Based on the Type of Trauma Experienced
Beth Janis, Psychology

211 2:00 pm
Healing Aspects of Consciousness-raising: A Narrative Analysis of Blogging in the Fat Acceptance Movement
Virginia Merritt, Communication

212 2:15 pm
Personality and Sexual Orientation Factors as Determinants of Interpersonal Attraction
James Weinrich, Psychology

Session B-4
Oral Presentation: Exercise and Nutritional Life Sciences
Friday, February 27, 2009, 1:00 pm – 2:45 pm
Location: Chantico

213 1:00 pm
Hamstring Stretching Study
Amir Tabibnia, Exercise and Nutritional Science

214 1:15 pm
A Unique Snack Option
Vincenta Grassano, Exercise and Nutritional Science

215 1:30 pm
The Effects of Dark Chocolate vs. Bloomed Dark Chocolate on Serum Lipid Profiles and Inflammation in Rats
Andrea Chapin, Exercise and Nutritional Science

216 1:45 pm
Role of Central Adaptation on Sweat Gland Response to Heat Acclimation
Travis Numan, Exercise and Nutritional Science

217 2:00 pm
Ventilatory Responses During a 5-s TASER® X-26 Exposure after Heavy Exercise
Amanda C. Barnard, Exercise and Nutritional Science

218 2:15 pm
The Effect Of Soy Protein on Plasma Lipid and Il-6 Levels in Dextran Sodium Sulfate-Treated Rats
Rachel K. Straub, Exercise and Nutritional Science
<table>
<thead>
<tr>
<th>Session B-5</th>
<th>Oral Presentation:</th>
<th>Civil and Environmental Engineering</th>
<th>Friday, February 27, 2009, 1:00 pm – 2:45 pm</th>
<th>Location: Council Chambers</th>
</tr>
</thead>
<tbody>
<tr>
<td>219 1:00 pm</td>
<td>Removal of Sulfadiazine and Sulfamethizole from Aqueous Solution by Ozonation</td>
<td>Alison Mumper, Civil Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>220 1:15 pm</td>
<td>Investigation of Surfactant Modified Activated Carbon for Recycled Water Disinfection</td>
<td>Jonathan Kocher, Environmental Engineering</td>
<td></td>
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<tr>
<td>221 1:30 pm</td>
<td>Effect of Ethanol on Adsorption of Heavy-Metals on Soil</td>
<td>Lalitha Thotakura, Environmental Engineering</td>
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</tr>
<tr>
<td>222 1:45 pm</td>
<td>Oxidation of Sulfamethoxazole and Sulfathiazole from Aqueous Solution by Ozonation and H2O2 Process</td>
<td>Shyam Krishna Umamaheshwar, Environmental Engineering</td>
<td></td>
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</tr>
<tr>
<td>223 2:00 pm</td>
<td>Removal of Bisphenol A from Aqueous Solution by Ozonation</td>
<td>Shinsyu Matsumoto, Environmental Engineering</td>
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</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Session B-6</th>
<th>Oral Presentation: Physical Chemistry and Sciences</th>
<th>Friday, February 27, 2009, 1:00 pm – 2:45 pm</th>
<th>Location: Presidential Suite</th>
</tr>
</thead>
<tbody>
<tr>
<td>224 1:00 pm</td>
<td>Hall Effect Study of Superconducting CaFe$_2$As$_2$ Under Pressure</td>
<td>Derek Padilla, Physics</td>
<td></td>
</tr>
<tr>
<td>225 1:15 pm</td>
<td>Structure and Properties of Al+</td>
<td>Kyle Rollin, Physics</td>
<td></td>
</tr>
<tr>
<td>226 1:30 pm</td>
<td>Towards the Rational Design of Functional Solids: Synthesis and Characterization of Porphyrin-Based Solids for Catalysis and Gas Sorption</td>
<td>Derek Butler, Chemistry</td>
<td></td>
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<tr>
<th>Session B-7</th>
<th>Oral Presentation: Social Relationships</th>
<th>Friday, February 27, 2009, 1:00 pm – 2:45 pm</th>
<th>Location: Quetzalcoatl A</th>
</tr>
</thead>
<tbody>
<tr>
<td>227 1:45 pm</td>
<td>Ruthenium Catalyzed Intramolecular Cyclization Reactions to Synthesize Heteroaromatic Compounds: Derivatives of Indoles and Benzofurans</td>
<td>Reji N. Nair, Chemistry</td>
<td></td>
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</tbody>
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<thead>
<tr>
<th>Session B-8</th>
<th>Oral Presentation: Language Learning Disorders and Processing II</th>
<th>Friday, February 27, 2009, 1:00 pm – 2:45 pm</th>
<th>Location: Quetzalcoatl B</th>
</tr>
</thead>
<tbody>
<tr>
<td>234 1:00 pm</td>
<td>Spoken and Written Language Performance</td>
<td>Darin Woolpert, Speech, Language, and Hearing Sciences</td>
<td></td>
</tr>
<tr>
<td>235 1:15 pm</td>
<td>Speech and Language System Interactions in Children with Speech Disorders</td>
<td>Alycia Cummings, Speech, Language, and Hearing Sciences</td>
<td></td>
</tr>
</tbody>
</table>
Session B-9
Oral Presentation: School Ethos
Friday, February 27, 2009, 3:15 pm – 5:00 pm
Location: Calmecac

236 1:30 pm
Bilingual Multi-tasking Advantage: Evidence from an
Online Language Processing Study
Roberto S. Gutierrez, Speech, Language, and Hearing Sciences

237 1:45 pm
Cerebral Perfusion and Language Therapy in Chronic
Stroke Survivors with Aphasia
Kathleen Brumm, Speech, Language, and Hearing Sciences

Session B-10
Oral Presentation: Biology and Neurobiology
Friday, February 27, 2009, 3:15 pm – 5:00 pm
Location: Casa Real

244 3:15 pm
Elucidating the Function of Alternative Reading Frame
Protein (ARFP) in HCV
Michael Valdez, Biology

245 3:30 pm
The Isolation and Characterization of Eosinophils in the
Zebrafish
Octavio Romo-Fewell, Biology

246 3:45 pm
Effects of Seagrass Structure on the Predator-
prey Interactions between Juvenile Giant Kelpfish
(Heterostichus Rostratus) and Grass Shrimp
(Hippolyte) Spp
Rachel Lannin, Biology

Session B-11
Oral Presentation: Politics and Policy
Friday, February 27, 2009, 3:15 pm – 5:00 pm
Location: Council Chambers

250 3:15 pm
Restoring the American Dream for Black Males
Funmilayo A. Akinmulero, Accounting

251 3:30 pm
The Cannabis Legalization Continuum: A Look at the
Industrial, Medical and Recreational Uses of Cannabis
Bryan FitzGerald, Political Science

252 3:45 pm
Obligation, Agreement, and Paternalism
Jonathan Hecht, Philosophy
<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Presenter</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
<td>253</td>
<td>Spinoza on the Civil State and its Security</td>
<td>Mikhail (Mike) Parnes, Philosophy</td>
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<tr>
<td>254</td>
<td>A Spinozan Critique of Competing American Political Theories</td>
<td>John Bell, Philosophy</td>
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<tr>
<td>255</td>
<td>Factorization in Integral Matrix Semigroups</td>
<td>Donald Adams, Mathematics</td>
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<tr>
<td>256</td>
<td>The Effects of Amplitude Modulation and Higher Harmonic Detection on Obtaining Hyperfine Spectra</td>
<td>Miguel Villalobos, Physics</td>
<td></td>
</tr>
<tr>
<td>257</td>
<td>Non-Linear Deformable Registration for Shape Based Interpolation of Knee and Cartilage Images</td>
<td>Ashish Varma, Computer Science</td>
<td></td>
</tr>
<tr>
<td>258</td>
<td>Collaboration-oriented Data Recovery for Mobile Disk Arrays</td>
<td>Abhinav Sharma, Computer Science</td>
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<tr>
<td>259</td>
<td>Hedging Weather Derivative Basis Risk</td>
<td>Scott Nelson, Mathematics and Statistics</td>
<td></td>
</tr>
<tr>
<td>260</td>
<td>A Graph Search Algorithm for Following Delphinid Whistle Contour</td>
<td>Bhavesh Patel, Computer Science</td>
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<tr>
<td>261</td>
<td>Research Proposal for “Cultural Adjustments for Sojourners Living in China”</td>
<td>Hongmei Lin, Communications</td>
<td>Quetzalcoatl A</td>
</tr>
<tr>
<td>262</td>
<td>Does Language Make a Difference? Assessing the Legitimacy of Bullying in Hispanic Acculturation</td>
<td>Derek Hyman, Public Health</td>
<td></td>
</tr>
<tr>
<td>263</td>
<td>Touring Visible Spaces and Histories Forgotten: A Study of Cultural Resources in Sierra San Francisco, BCS, Mexico</td>
<td>Adam Giacinto, Anthropology</td>
<td></td>
</tr>
<tr>
<td>264</td>
<td>Children of Poverty: Escape through Performance</td>
<td>Dominic Abbenante, Geography</td>
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<tr>
<td>265</td>
<td>Predictors of Disease-management and Glycemic Control among Latinos with Type II Diabetes: A Social-ecological Perspective</td>
<td>Addie Brewer, Psychology</td>
<td>Quetzalcoatl B</td>
</tr>
<tr>
<td>266</td>
<td>High Risk of Binge Eating Disorder among California Women of Korean Descent</td>
<td>Veronica Irvin, Public Health</td>
<td></td>
</tr>
<tr>
<td>267</td>
<td>Correlates of Unprotected Sex with Female Sex Workers Among Male Clients in Tijuana, Mexico</td>
<td>Shira Goldenberg, Public Health</td>
<td></td>
</tr>
<tr>
<td>268</td>
<td>Leave or Stay: Behavioral Ecology of Preteens Response to Secondhand Smoke</td>
<td>Ding Ding, Public Health</td>
<td></td>
</tr>
</tbody>
</table>
269 4:15 pm  
**Exploring the Relationships Between Dengue Fever Knowledge and Aedes aegypti Breeding in St. Catherine Parish, Jamaica: A Pilot of Enhanced Surveillance**  
Justin Stoler, Geography

**Session C-1**  
**Poster Presentation: Analytical Chemistry II**  
Friday, February 27, 2009, 5:15 pm – 6:45 pm  
Location: Montezuma Hall South

270 Poster #1  5:15-6:45 pm  
**Ultrasonic Nonlinear Laser Wave-mixing Spectroscopy for Chem/Bio Agents**  
Marc Gregerson, Chemistry

271 Poster #2  5:15-6:45 pm  
**Sub-doppler Sensitive Isotope Analysis Based on High-resolution Nonlinear Laser Wave-mixing Spectroscopy**  
Wendy Lyons, Chemistry

272 Poster #3  5:15-6:45 pm  
**Size Determination of Nanoparticles by Micellar Electrokinetic Chromatography**  
Srilatha Vydha, Chemistry

273 Poster #4  5:15-6:45 pm  
**Electron Affinities of Electron Transfer Agents in Solution**  
James Hart, Chemistry

274 Poster #5  5:15-6:45 pm  
**Laser Light Scattering as a Method of Nanoparticle Sizing**  
Ryan Razón, Chemical Physics

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276 Poster #7  5:15-6:45 pm  
**Purification of Plant MAP Kinase 4 Using Drosophila melanogaster sf9 Cells**  
Vincent Siu, Biology

277 Poster #8  5:15-6:45 pm  
**Expression of a Random Peptide Library in the Nucleus and Cytoplasm of Mammalian Cells as a Screen for Factors that Block Infection of HIV**  
Ashton Regalado Magdos, Biology

278 Poster #9  5:15-6:45 pm  
**Bio-diesel from Cell Membranes**  
Samuel Ollar, Chemistry

279 Poster #10  5:15-6:45 pm  
**Isolation of Potential Pharmaceuticals from the Peruvian Plant Flaveria Bidentis**  
Gabriel Chait, Biology

280 Poster #11  5:15-6:45 pm  
**A Novel Method for Age Based RBC Separation**  
Rawiya S. Aburas, Chemistry

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**Session C-1**  
**Poster Presentation: Learning Communities**  
Friday, February 27, 2009, 5:15 pm – 6:45 pm  
Location: Montezuma Hall South

281 Poster #12  5:15-6:45 pm  
**Reframing Teaching English as a Second Language in Mexico**  
Gerardo Garcia, Education

282 Poster #13  5:15-6:45 pm  
**Making Reading and Writing a Social Tool for Preparatoria Students in Mexico.**  
Manuel Lopez, Education

283 Poster #14  5:15-6:45 pm  
**Determining the Impact of a Peer Academic Mentor on First Year Residential Learning Community Students Academic Success**  
Vanessa Mathews, Education

284 Poster #15  5:15-6:45 pm  
**Classroom Testing Measures vs Key English Test (KET) Exam Exigencies**  
Luis M. Gonzalez, Education
285 Poster #16  5:15-6:45 pm  
Elementary Grade Students: Characteristics of a Good Teacher
Kayleigh Neel, Education

286 Poster #17  5:15-6:45 pm  
Exploring Differences in Academic Advising Experience
Miriam Pacheco, Psychology

Session C-1  
Poster Presentation: Neurophysiology  
Friday, February 27, 2009, 5:15 pm – 6:45 pm  
Location: Montezuma Hall South

287 Poster #18  5:15-6:45 pm  
Uncertainties in the BrainLAB Novalis Body/ExacTrac System and Their Clinical Implications
Casey Abing, Physics

288 Poster #19  5:15-6:45 pm  
Postnatal Choline Administration Attenuates Memory Impairment Associated With Neonatal Alcohol Exposure in the Rat
Elizabeth Abou, Psychology

289 Poster #20  5:15-6:45 pm  
Dietary Choline Deficiency Exacerbates the Effects of Prenatal Alcohol Exposure on Physical and Behavioral Development
Yosef Nacach, Psychology

290 Poster #21  5:15-6:45 pm  
Microstructural Analysis of Long-Term Alcohol Intake and Preference in Mice Lacking the Transient Receptor Potential Channel Vanilloid Receptor 1 (Trpv1)
Norma Castro, Psychology

Session C-1  
Poster Presentation: Policy, Politics, and Justice  
Friday, February 27, 2009, 5:15 pm – 6:45 pm  
Location: Montezuma Hall South

292 Poster #23  5:15-6:45 pm  
The Cosmopolitan Condition
Jeff Sharpless, Philosophy

293 Poster #24  5:15-6:45 pm  
We See Barack Obama and John McCain as Equally American? It Depends on Our Lenses!
Jessica Winet, Psychology

294 Poster #25  5:15-6:45 pm  
Racial Background and Judicial Elections: Determining the Voting Patterns of Minority State Supreme Court Justices
Lawrence Cisneros, International Security and Conflict Resolution

295 Poster #26  5:15-6:45 pm  
Attitudes of California Court Interpreters Regarding Current Economic Conditions
Karen Sevilla, Spanish

296 Poster #27  5:15-6:45 pm  
Documenting Impacts of Illegal Mining on Guizhou Golden Monkey Habitat in Southwestern China Using Remote Sensing
Sarah Wandersee, Geography

297 Poster #28  5:15-6:45 pm  
Remote Sensing of Early Season Snowmelt and Green-Up Dynamics Across the North Slope of Alaska
Raghuram Narasimhan, Geography

107 Poster #29  5:15-6:45 pm  
An HHT Analysis of Climate Normals
Scott Strachan, Mathematics and Statistics
## Sessions: Saturday, February 28

### Session D-1

**Oral Presentation: Creative Arts and Writing**  
**Saturday, February 28, 2009, 8:00 am – 9:45 am**  
**Location: Backdoor**

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
</tr>
</thead>
</table>
| 298   | 8:00 am                                                              | *Fiddler in the Darkness*  
David Gutterman, Television, Film and New Media Production                                       |
| 299   | 8:15 am                                                              | *The Connection Between Rap and Blues Lyrics*  
Justin Ector, Africana Studies                                                                      |
| 300   | 8:30 am                                                              | *Labanotation of San Diego Salsa Dancers*  
Jamie Lane Lynch, Dance                                                                            |
| 301   | 8:45 am                                                              | *Dramatizations in Documentaries*  
Matt Sned, Television, Film, and New Media Production                                               |
| 302   | 9:00 am                                                              | *Bringing Back Dionysus: Creating Nietzschean Unity by Joining Performers and Spectators in Modern Retellings of Euripides Tragedies*  
Lauren Beck, Theatre Arts                                                                          |
| 303   | 9:15 am                                                              | *Connecting the Dots, a Timeline from Book to Blood: How the Play Charles IX Incited the French Revolution*  
Joan Hurwit, Theatre Arts                                                                         |

### Session D-2

**Oral Presentation: Politics and Campaigns**  
**Saturday, February 28, 2009, 8:00 am – 9:45 am**  
**Location: Calmecac**

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
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</thead>
</table>
| 304   | 8:00 am                                                              | *Title IX: A Fight for Equality*  
Charlotte Wagner, Communication                                                                     |
| 305   | 8:15 am                                                              | *The Effects of the 2008 Biden-Palin Vice Presidential Debate*  
Jenna Patronete, Communication                                                                     |
| 306   | 8:30 am                                                              | *Feels Like the First Time: the Influence of Interpersonal Communication, Traditional Media, and Internet Sources on First-Time Voter Decision*  
Travis Coufal, Communication                                                                     |
| 307   | 8:45 am                                                              | *The Role of Public Relations in a Ballot Proposition Campaign*  
Mark Olson, Journalism and Media Studies                                                           |
| 308   | 9:00 am                                                              | *Reading From Left to Right: the Politics of Partisan Review*  
Matthew June, History                                                                              |
| 309   | 9:15 am                                                              | *Capitalistic Agency: BPs Helios Power Campaign*  
Karl Smerecnik, Communication                                                                     |

### Session D-3

**Oral Presentation: Spiritual Explorations**  
**Saturday, February 28, 2009, 8:00 am – 9:45 am**  
**Location: Casa Real**

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
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</thead>
</table>
| 310   | 8:00 am                                                              | *Sacred Comedy: Investigating Humor as a Pathway to Religious Tolerance*  
Sherry Shopoff, Classics                                                                          |
| 311   | 8:15 am                                                              | *With Continual Delight: the Spiritual Meditations of Lady Grace Mildmay*  
Gaelan Gilbert, English                                                                           |
| 312   | 8:30 am                                                              | *Occasionalism and God’s Volitions: Minimalism Versus the Traditional Reading*  
Nicholas Doenges, Philosophy                                                                       |
| 313   | 8:45 am                                                              | *Reconciling the ‘Self’ in Buddhist and Western Psychology*  
Tonya Warren, Philosophy                                                                         |
| 314   | 9:00 am                                                              | *On Deconstruction, Post Modernism, and Christianity*  
Conor R. Anderson, Philosophy                                                                     |
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<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Presenter</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:15</td>
<td>D-4</td>
<td>Socrates and Plato: Development of the Soul</td>
<td>David Kuttruff, Philosophy</td>
<td>Chantico</td>
</tr>
<tr>
<td>8:00</td>
<td>D-4</td>
<td>Sustaining the Integrity of M&amp;A Due Diligence: An Examination of the Fair Value Environment</td>
<td>Gagandeep Singh, Accounting</td>
<td>Chantico</td>
</tr>
<tr>
<td>8:30</td>
<td>D-4</td>
<td>Zimbabwe: From Landright Invalidation to Hyperstagflation</td>
<td>Dennis Oriaifo, Economics</td>
<td>Chantico</td>
</tr>
<tr>
<td>8:45</td>
<td>D-4</td>
<td>One-day Job Shadow Program</td>
<td>Howard Tu, Marketing</td>
<td>Chantico</td>
</tr>
<tr>
<td>9:00</td>
<td>D-4</td>
<td>The Resurgence of the Tijuana Punk Scene</td>
<td>Ana Medina, Chicana and Chicano Studies</td>
<td>Presidential Suite</td>
</tr>
<tr>
<td>8:00</td>
<td>D-5</td>
<td>Narrative Strategy in Ixpantepec Nieves Mixtec</td>
<td>Michael Bowen, Linguistics</td>
<td>Council Chambers</td>
</tr>
<tr>
<td>8:15</td>
<td>D-5</td>
<td>El Zarco as Foundational Fiction and the Subversion of the Mexican Indian</td>
<td>Fernando Serrano Jr, Latin American Studies</td>
<td>Council Chambers</td>
</tr>
<tr>
<td>8:30</td>
<td>D-5</td>
<td>La Frontera Nueva: Mexico, Manhood, and Mitchum in American Film</td>
<td>Jason Stuart, History</td>
<td>Council Chambers</td>
</tr>
<tr>
<td>8:45</td>
<td>D-5</td>
<td>Cortés’ Contribution to Machismo</td>
<td>Dexter Hough-Snee, Spanish</td>
<td>Council Chambers</td>
</tr>
<tr>
<td>8:00</td>
<td>D-6</td>
<td>Production of Advanced Hydrogen Storage Components via Modified Vapor Deposition Processes and Spark Plasma Sintering Consolidation</td>
<td>William Bradbury, Mechanical Engineering</td>
<td>Presidential Suite</td>
</tr>
<tr>
<td>8:15</td>
<td>D-6</td>
<td>Numerical Modeling of the Effect of Histidine Protonation on DNA Hybridization and pH Distribution in Electronically Active Microarrays</td>
<td>Bhuvnesh Arya, Mechanical Engineering</td>
<td>Presidential Suite</td>
</tr>
<tr>
<td>8:30</td>
<td>D-6</td>
<td>Experimental Investigation of Organic MEMS/NEMS Based Bulk Heterojunction Photovoltaic Cell with 3D Graphite Electrodes</td>
<td>Mohammad Majzoub, Mechanical Engineering</td>
<td>Presidential Suite</td>
</tr>
<tr>
<td>8:45</td>
<td>D-6</td>
<td>Novel Spark Plasma Extrusion of Aluminum Powders</td>
<td>Ahmed El Desouky, Mechanical Engineering</td>
<td>Presidential Suite</td>
</tr>
<tr>
<td>8:00</td>
<td>D-7</td>
<td>Comparative Study of Grid Connected Photovoltaic Arrays</td>
<td>Tyler Otto, Physics</td>
<td>Quetzalcoatl A</td>
</tr>
<tr>
<td>8:15</td>
<td>D-7</td>
<td>Computational Modeling of Interactions Between Bose-Einstein Condensates and Ince-Gaussian Laser Beams</td>
<td>Charles Tally, Physics</td>
<td>Quetzalcoatl A</td>
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<tr>
<td>Time</td>
<td>Presentation</td>
<td>Speaker</td>
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<tr>
<td>8:30 am</td>
<td>Influence Of Spatial Dependence on the Eigenvalue Spectrum of Complex Networks</td>
<td>Joris Billen, Physics</td>
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<tr>
<td>8:45 am</td>
<td>Anisotropic Grain Evolution during Sintering Using a Potts Monte Carlo Simulation</td>
<td>Gordon Brown, Mathematics and Statistics</td>
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<tr>
<td>9:00 am</td>
<td>Implementing Low Density Parity Check Code Decoders</td>
<td>Raymond Moberly, Mathematics and Statistics</td>
<td></td>
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<tr>
<td>9:15 am</td>
<td>Structure Enhancement Diffusion and Contour Extraction for Electron Tomography of Mitochondria</td>
<td>Carlos Bazan, Computational Science</td>
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</tbody>
</table>

Session D-8
Oral Presentation: Learning Approaches in STEM Curriculum  
Saturday, February 28, 2009, 8:00 am – 9:45 am  
Location: Quetzalcoatl B

<table>
<thead>
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<th>Time</th>
<th>Presentation</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 am</td>
<td>Effort versus Ability in Mathematics</td>
<td>Elizabeth McEvoy, Education</td>
</tr>
<tr>
<td>8:15 am</td>
<td>Improving College Matriculation through Curricular Realignment</td>
<td>Amanda Opperman, Education</td>
</tr>
<tr>
<td>8:30 am</td>
<td>An Experimental Study of Instructor Immediacy in the Wimba Virtual Classroom</td>
<td>Lorah Bodie, Educational Technology</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Reforming Undergraduate STEM Courses for Preservice K-6 Teachers: How Much Does Funding Matter?</td>
<td>Corinne Lardy, Education</td>
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</tbody>
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</thead>
<tbody>
<tr>
<td>8:30 am</td>
<td>School Web Sites Within The Educational Marketplace: A Case Study Investigating The Parents as Engaged Consumer-Users</td>
<td>Jane Beeman, Educational Technology</td>
</tr>
<tr>
<td>8:45 am</td>
<td>Exploring the Conceptions of Students Taking Upper-division Mathematics Courses: Are More Courses Solely Enough to Teach K-3 Mathematics?</td>
<td>John Siegfried, Education</td>
</tr>
<tr>
<td>9:00 am</td>
<td>A Beginning Conception of Speed When Acceleration is Constant</td>
<td>Charles Hohensee, Mathematics and Statistics</td>
</tr>
</tbody>
</table>

Session D-9
Oral Presentation: Creative Arts and Writing II  
Saturday, February 28, 2009, 10:15 am – 12:00 pm  
Location: Backdoor

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
<th>Speaker</th>
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<tr>
<td>10:15 am</td>
<td>Water Project</td>
<td>Lyubov Klimova, Art</td>
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<tr>
<td>10:30 am</td>
<td>Water: A Precious Resource</td>
<td>Namita Sharma, Art</td>
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<td>10:45 am</td>
<td>Afro-Cuban Religious Experience in the Artistic Aesthetics of Belkis Ayon (1967-1999)</td>
<td>Patricia Lettieri, Art</td>
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<td>11:00 am</td>
<td>Extraordinary at 100</td>
<td>Wendy Shapiro, Art</td>
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<td>11:15 am</td>
<td>Virtual Water Revealed</td>
<td>Kizzy Ezirio, Arts</td>
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Session D-10
Oral Presentation:
Biochemical and Physiological Life Sciences
Saturday, February 28, 2009, 10:15 am – 12:00 pm
Location: Calmecac

347 10:15 am
Chemical reactivity of Native Cysteines of Human IkBα
Robert Koehler, Chemistry

348 10:30 am
Confirming Target Gene Silencing by Cytoxic Antisense Oligonucleotides
Karen Schuerenber, Chemistry

349 10:45 am
Identification of a Cardiac Pathogen Responsible for In Utero Death of a Fetus
Uzoagu Okonkwo, Biology

350 11:00 am
Genome-Wide Screen for Fat Regulatory Genes in Drosophila melanogaster
Ernesto Enrique, Biology

351 11:15 am
The Analysis of Ethanol Sensitivity, Tolerance, and Metabolism in Drosophila Sphingolipid Mutants
Alexis Zukowski, Biology

Session D-11
Oral Presentation:
Cultural Influences and Public Health
Saturday, February 28, 2009, 10:15 am – 12:00 pm
Location: Casa Real

352 10:15 am
The Evolution of the Culture of the Organic Food
Danielle Ingoglia, Public Administration

353 10:30 am
Preventative Health Habits Among Korean-American Women in California
David Fink, Public Health

354 10:45 am
Effectiveness of a Non-culturally Tailored Prevention Intervention to Reduce Transmission of STIs, HIV and Unintended Pregnancy for Latinos Compared to African American and White Participants
Estela Blanco, Public Health

355 11:00 am
The Geodemographic Classification of Slums: Health and Demographic Patterns in Accra, Ghana
Marta Jankowska, Geography

356 11:15 am
The Association Between Environmental Perceptions on Park Use Among Latinas.
Tracy Hoos, Public Health

357 11:30 am
Creating a Collaborative Framework to Understand and Reduce Health Disparities in San Diego County’s Asian/Pacific Islander (API) Communities
Linda Xiong, Public Health

Session D-12
Oral Presentation: The Wide World of Business II
Saturday, February 28, 2009, 10:15 am – 12:00 pm
Location: Chantico

358 10:15 am
Port of Entry Design, Location, and Management, and Corresponding Effects on Border Wait Times
Joseph Lea, Business Administration

359 10:30 am
Withdrawn

360 10:45 am
Sidekix
David Krisch, Business Administration

361 11:00 am
La Paloma Fiscal Impact Report Analysis
Glen Allegranza, Public Administration
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<tr>
<th>Session D-13</th>
<th>Oral Presentation: Community Perspectives</th>
<th>Saturday, February 28, 2009, 10:15 am – 12:00 pm</th>
<th>Location: Council Chambers</th>
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<tbody>
<tr>
<td>362 10:15 am</td>
<td><em>How Archaeologist Integrate with Local Communities, Customs, and Beliefs in Oaxaca, Mexico.</em> Marcos Ramos Ponciano, Anthropology</td>
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<td>364 10:45 am</td>
<td><em>Adoption of the Thin-ideal and Body Image in Latinas</em> Javier Galvez, Psychology</td>
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<tr>
<td>365 11:00 am</td>
<td><em>The Chilling Effect of Fear of Reprisal on Union Interest</em> Lacey Wilson, Psychology</td>
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<td>366 11:15 am</td>
<td><em>Student Organization Leadership Residence (SOLR)</em> Patrick Hale, Public Administration</td>
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<tr>
<th>Session D-14</th>
<th>Oral Presentation: Electrical Engineering</th>
<th>Saturday, February 28, 2009, 10:15 am – 12:00 pm</th>
<th>Location: Presidential Suite</th>
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<tbody>
<tr>
<td>367 10:15 am</td>
<td><em>Spark Plasma Sintering</em> Marcus Schaffer, Electrical Engineering</td>
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<tr>
<td>368 10:30 am</td>
<td><em>Novel Volumetric Metamaterial Structures for Microwave Device and Antenna Applications</em> Nathan Labadie, Electrical Engineering</td>
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<tr>
<td>369 10:45 am</td>
<td><em>Investigations on the Design of a Wideband Microstrip Bandpass Filter with the Help of Defected Ground Structures (DGS)</em> Pankaj Dagar, Electrical Engineering</td>
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<tr>
<th>Session D-15</th>
<th>Oral Presentation: Culture and Health II</th>
<th>Saturday, February 28, 2009, 10:15 am – 12:00 pm</th>
<th>Location: Quetzalcoatl B</th>
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<tr>
<td>370 11:00 am</td>
<td><em>Investigations on Cylindrical Shape Dielectric Resonator Antenna (DRA) with Wide Impedance Bandwidth and Low Cross Polarization Gain using Anti-Probe Arrangements</em> Abhishek Singh, Electrical Engineering</td>
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<tr>
<td>371 11:15 am</td>
<td><em>QoS Supportive MAC Protocol for WLANS</em> Rohitha Vakamudi, Electrical Engineering</td>
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<td>372 11:30 am</td>
<td><em>An Investigation on the Wideband Radiation Behavior of a Sierpinski Microstrip Fractal Antenna using a Novel Feed Network</em> Justin Church, Electrical Engineering</td>
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<tr>
<th>Session D-15</th>
<th>Oral Presentation: Culture and Health II</th>
<th>Saturday, February 28, 2009, 10:15 am – 12:00 pm</th>
<th>Location: Quetzalcoatl B</th>
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<tr>
<td>373 10:15 am</td>
<td><em>Neighborhoods and Obesity: The Effect of Objective and Subjective Measures of Place among a Relatively Sedentary U.S. Population</em> Erin Endres, Sociology</td>
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<td>374 10:30 am</td>
<td><em>Social Implications of Visitors on Dietary and Traditional Practices in The Remote Ranches of Sierra San Francisco, BCS, Mexico</em> Rebeca Espinoza, Public Health &amp; LAS MPH/MA</td>
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<td>375 10:45 am</td>
<td><em>Patronymy and the Trope of Choice</em> Melissann Herron, Women’s Studies</td>
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<td>376 11:00 am</td>
<td><em>Optimization of Multiple Objectives for Emergency Wildfire Evacuation Decisions</em> Grant Fraley, Geography</td>
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<td>377 11:15 am</td>
<td><em>Exploring Attribute Spaces to Understand the Experience of Place</em> Ryan Burns, Geography</td>
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Session A-1
Poster: Developmental Changes
Friday, February 27, 2009, 8:45 am – 10:15 am
Location: Montezuma Hall South

#1 8:45-10:15 am
FMRI Activation and Olfactory Cross-modal Recognition Memory Performance in Older Adults
Lori Haase, Psychology
Claire Murphy, Psychology

Olfactory memory function is impaired in older adults and profoundly impaired in both Alzheimer’s Disease and Parkinson’s Disease. The underlying cortical substrate for olfactory memory dysfunction was investigated using fMRI in a cross-modal olfactory recognition memory paradigm that was modeled after a paradigm developed by Stark and Squire (2000). That is, the study investigated associations between cross-modal olfactory recognition memory performance as subjects attempted to indicate targets and foils during fMRI scanning sessions and brain activation in 39 non-demented older adults. Immediately before entering the scanner, the subject was presented 16 odors. During functional runs at 3T on a GE scanner, target and foil names of odors were presented and the subject responded via button box whether or not each name corresponded with an odor presented before the scan. Performance on the memory task was recorded as hits, misses, correct rejections and false positives and the discriminability index (d) was subsequently computed. ROI analysis tested the hypothesis that activation in regions involved in olfactory and recognition memory varies as a function of subjects’ discriminability index. Results indicate that when individuals with low discriminability respond to an odor as having been previously presented (hit), they demonstrate significantly greater activation within the superior frontal gyrus, middle frontal gyrus, anterior hippocampus, posterior hippocampus, parahippocampus, amygdala, entorhinal cortex and piriform cortex relative to individuals with high discriminability. This study suggests that patterns of cortical activation in frontal and temporal areas are associated with degree of impairment in cross-modal odor recognition memory. Supported by NIH grant #AG04085 to CM. We thank Eva Pirogovsky, Erin Sundermann, Barbara Cerf-Ducastel and Megan Miller for assistance.

#2 8:45-10:15 am
Functional Connectivity of Olfactory Processing during a Hedonic Evaluation Task in Young and Older Adults
Erin Green, Psychology
Claire Murphy, Psychology

Olfactory function declines with age and research using neuroimaging techniques has illustrated reductions in the activation of brain regions involved in olfactory processing in older compared to young adults. The objective of the present analysis was to examine differences in the recruitment of functional networks involved in processing olfactory hedonics in young (ages 18-30) and healthy older adults (ages 65+). Functional connectivity methods allow for the extraction of associations between various brain regions, illustrating the recruitment of an entire functional network involved in a particular task. Comparisons can then be made between network models among different populations. This analysis was run on the functional Magnetic Resonance Imaging time series during which participants received 0.3ml of a citral solution and were asked to rate the pleasantness of the odor. The resulting patterns of connectivity suggest age-related disturbances in the recruitment of networks related to olfactory processing during evaluation of pleasantness. Identifying differences in functional circuits involved in hedonic evaluation of food-related stimuli in young and older adults may increase understanding of age-related differences in the experience of food reward as well as various nutritional problems that occur with aging.

#3 8:45-10:15 am
Sleep Patterns Before, During, and After Military Combat Deployment in Support of the Wars in Iraq and Afghanistan
Amber Seelig, Public Health
Carol Macera, Public Health

Research has shown that lack of sleep may have deleterious effects on health, yet population-based studies examining the sleep patterns of US military personnel are lacking. This study investigates the relationship between sleep duration and deployment in support of the wars in Iraq and Afghanistan. The Millennium Cohort Study is a 21-year longitudinal study designed to determine the long-term health effects of military service. Baseline data collected from July 2001 to June 2003 and follow-up data collected from June 2004 to February 2006 include information on sleep duration, trouble sleeping, military occupation, demographics, mental and physical health, and combat-related exposures. Deployment information is available from electronic military data. Millennium Cohort participants who completed a baseline and follow-up survey were included in this study. Participants were
placed into one of three exposure groups based on their deployment status and timing of follow-up survey completion: non-deployer, survey completed post-deployment, or survey completed during deployment. Follow-up sleep duration was compared across the three deployment groups using ANCOVA to adjust for baseline sleep duration, military, demographic and occupational factors. Self-reported sleepiness and trouble sleeping were also examined using logistic regression. Of the approximate 52000 individuals with longitudinal data and no deployment prior to baseline, 73% were nondeployers between baseline and follow-up, 21% deployed between their baseline and follow-up surveys, 6% filled out their follow-up survey during deployment. Analyses are ongoing. Determining the sleep duration and prevalence of sleep disorders of military personnel may help guide future policy to promote healthy sleep during deployment, consequently perhaps mitigating or reducing comorbid mental health morbidity.

#4 8:45-10:15 am

**Effects of Aging on Temporal Order Memory in Rats**

Paul Gilbert, Psychology

Temporal order memory is the ability to maintain a representation of the order of events that have been experienced over time. Studies have found that temporal order memory is dependent on the frontal and temporal lobes of the brain. In addition, age-related changes have been well documented in these brain regions in human and non-human species. Although numerous studies have documented temporal order memory deficits in older humans, no studies have examined temporal order memory in aged rats. The current study investigated temporal order memory in young rats 6 months of age (n=12) and old rats 24 months of age (n=12). Rats were tested on a temporal order memory task involving three exploratory trials and one probe test. During the exploratory trials, the rat explored a set of three sequentially presented object pairs (A-A, B-B, and C-C) for five minutes per pair with a three minute delay between each pair. Following the exploratory trials a probe test was conducted, where the rat was presented simultaneously with one object from the first exploratory trial (A) and one object from the third exploratory trial (C). Prior studies suggest that increased exploration of object A over object C is indicative of intact memory for the temporal order of the objects. Results from the three exploratory trials showed no significant age-related differences in exploration. Results from the probe test demonstrated that young rats spent significantly more time (p < .05) exploring object A compared to object C, indicating that young rats show intact memory for the temporal order of the exploratory trial objects. In contrast, old rats showed no preference for object A and spent a relatively equal amount of time exploring objects A and C. The results suggest that temporal order memory may decline as a result of age-related changes in the rodent brain. Since no significant age-related differences were detected during the exploratory trials, age-related differences on the probe trial were not due solely to decreased exploration or locomotion in aged rats. The findings significantly strengthen the animal model as an appropriate and useful tool to study normal human aging.

#5 8:45-10:15 am

**ApoE Status and Differences in Olfactory Detection Across the Lifespan**

Krystin Corby, Psychology
Claire Murphy, Psychology

A gradual decline in olfaction is associated with healthy aging. For people who have the e4 allele of the Apolipoprotein (ApoE) gene, that process begins earlier and declines faster 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. The purpose of this study was to investigate the effects of age and ApoE status on the P3 component of OERPs. Subjects in age groups of young (18-28 years old), middle age (45-56), and older (65 +) were administered an olfactory detection task to elicit the OERP. Participants were instructed to respond as quickly as possible after smelling the odor by pressing a button. The stimulus was amyl acetate presented every 30 seconds by olfactometer. Statistical analyses were performed using a multivariate analysis of variance. No significant effects for P3 amplitude were found. There was no significant effect of ApoE e4 status on latency for the young or middle age groups. In the older group, ApoE e4 positive participants had significantly longer latencies than their negative counterparts. They also had longer latencies than the positive young and middle age participants. The effect size in the current study is larger than previous studies that previously demonstrated increased latencies for this population likely due to the decreased inter-stimulus interval to 30 seconds from 45 seconds. The shorter inter-stimulus interval increased the difficulty of the task by giving the participant less time to recover from each stimulus.

#6 8:45-10:15 am

**Age-related Changes in Visual Pattern Separation**

Chelsea Toner, Psychology
Paul Gilbert, Psychology

The dentate gyrus (DG) and CA3 subfields of the hippocampus have been shown to support pattern separation, a mechanism to separate overlapping neural representations. Studies in rodents using neurotoxin-induced lesions and electrophysiological recordings have demonstrated that the DG and CA3 subfields may support pattern separation. A study involving amnesic humans
with damage limited to the hippocampus demonstrated that these individuals also show deficits in pattern separation. In addition, a functional magnetic resonance imaging study revealed that subregions of the human hippocampus support pattern separation. Healthy older adults show age-related degeneration in the hippocampus; however, no studies have examined the effects of aging on pattern separation. The current study examined the ability of non-demented older adults over 65 years of age and young adults to perform a continuous recognition memory task for visual objects. Pictures of everyday objects were shown one at a time on a computer screen to each participant. Some of the objects were repeated across trials and some objects, referred to as lures, were presented that were very similar but not identical to previously presented objects. The lures are hypothesized to result in increased interference and an increased need for pattern separation. When each object was presented, the participant was asked to press one of three buttons to indicate whether: 1) this was the first time the object was seen during the task (new), 2) the object was seen previously during the task (old), or 3) the object was similar to an object seen previously during the task (similar). Older adults were able to correctly identify objects as old or new as well as young adults. However, older adults were less likely to correctly identify the lures as similar. The present results suggest that pattern separation may be less efficient in older adults relative to the younger adults. The ability of older adults to recognize repeated stimuli as well as young adults suggests that the finding is not simply due to a deficit in recognition memory. Therefore, healthy aging may result in degeneration in regions of the hippocampus critical for pattern separation.

#7 8:45-10:15 am

An Investigation of Emotional Enhancement of Memory For Faces And Words In Non-Demented Older Adults
Shea N. Gluhm, Psychology
Paul Gilbert, Psychology

Emotional enhancement of memory (EEM) is the phenomenon whereby emotional information is remembered better than neutral information. EEM requires a sufficient level of arousal to alter recollection of emotional events. Young adults have demonstrated a “negativity effect”, remembering more positive stimuli than negative or neutral stimuli. Older adults show a “positivity effect” remembering more positive stimuli than negative or neutral stimuli. This “positivity effect” and “negativity effect” comprise the Socioemotional Selectivity Theory. Some studies debate this theory showing the pattern is the same in both younger and older adults. The present study examined age-related changes in EEM by comparing recognition and recall memory for positive, negative, and neutral facial expressions and words in healthy young adults and older adults. During the study phase, participants were shown a series of either 24 target faces or 24 target words one at a time and were asked to rate the intensity of the stimuli on a seven-point Likert scale. Word recall was assessed by asking the participant to list all the words they could remember. During the recognition phase, the participant was presented with target words or faces and distractors one at a time and was asked to indicate whether each stimulus was seen during the study phase. Memory was better in younger adults compared to older adults. No emotional enhancement was found in recognition memory for faces or words in young and older adults. However, there was emotional enhancement of recall memory for positive and negative words in both young and older adults. No “negativity effect” or “positivity effect” was found. Therefore, patterns of emotional memory were the same for younger and older adults. Valance and arousal ratings were well stratified and agreed upon by both younger and older adults. Arousal ratings did not correlate with memory performance in younger adults, but correlated with memory performance for neutral faces in older adults. This finding suggests differential application of arousal in face memory between younger and older adults and possible compensation mechanisms in older adults. This research was supported by the SDSU University Grants Program and NIH COR grant #MH065183.

#8 8:45-10:15 am

Age-related Deficits in Temporal Order Memory in Non-Demented Older Adults
Anastacia C. Tobin, Psychology
Paul Gilbert, Psychology

Temporal order memory is defined as memory for the sequential arrangement of events, which deteriorates as one ages. This deterioration can disrupt cognitive functions such as episodic memory. The goal of the present study was to examine temporal order memory in young and non-demented older adults using two visuospatial sequence tasks conducted on a computerized eight-arm maze. On the first task, participants viewed a fixed sequence of circles that appeared at the end of each arm one at a time. Participants were instructed to learn this sequence and then replicate it. Older adults required significantly more trials to replicate the sequence and committed significantly more errors than the younger adults. Each trial of the second experiment consisted of a study phase followed by a choice phase. On the study phase, the participant was shown a fixed sequence of circles presented one at a time at the end of each of the eight arms. On the choice phase, the participant was presented with two circles at the end of two of the study phase arms and was asked to choose the circle that came earlier in the sequence. Parametric manipulations of the temporal metric were carried out by systematically changing the temporal separation lag between the two circles in the choice phase. Older adults showed significant impairments...
compared to young adults across proximal and moderate temporal separations but matched young adults on distal separations. The present experiments indicate that older adults demonstrate memory deficits on fixed sequence tasks particularly when temporal interference is increased. Therefore, deficits on temporal sequence tasks may serve as an early behavioral indicator of cognitive impairment associated with normal aging.

#9 8:45-10:15 am

**Olfactory Abilities in Alzheimer's Disease**

Claire Murphy, Psychology
Miguel Martin Del Campo, Psychology

Dementia, especially Alzheimer's disease (AD), is a highly prevalent problem in our society with about one third of people over the age of 85 affected (Ott et al., 1995). In line with the prevalence of AD there is increasing research on early symptoms. Studies have found that low olfactory abilities can be a predictor for AD (Devanand et al., 2000). Furthermore, other studies have found that patients with early onset AD had difficulty recognizing and discriminating between odors; and their remote memory for odors was significantly impaired when compared to healthy controls (Hughes, Struble, & Shaffer, 2001; Gilbert, Barr, & Murphy, 2004). The present study investigates the differences in the relationship between odor threshold and odor memory in AD patients and healthy older adults. Odor memory and odor threshold were assessed in 178 individuals with an average age of 71.28. Alzheimer's patients (N = 89) were diagnosed by two separate neurologists at the University of California, San Diego Alzheimer's Disease Research Center. To measure odor threshold we presented participants with a butanol solution and distilled water alternatively and asked whether they had been presented with the odor during the previous phase or not. A ratio between these two values was calculated for each participant. Analysis of variance was used to analyze the data comparing AD patients and normal controls on odor threshold, odor memory, and their ratio. Results indicate that both odor threshold and odor memory were significantly reduced in AD patients when compared to normal controls. These findings suggest that a sharp decline in olfactory abilities and memory are associated with AD. Funded by NIH grant # AG04085 to Claire Murphy. Miguel Martin Del Campo was supported by the SDSU MBRS/IMSD Program 2R25GM058906-09A1.

#10 8:45-10:15 am

**Comparison of Olfactory P3 Latencies in Young and Older Adults**

Roberto Zamora, Psychology
Claire Murphy, Psychology

Olfactory event related potentials (OERPs), are a potential assessment tool for Alzheimer's disease, and have been used to compare demented adults to their non-demented counterparts. Previous studies suggested that the P3 latency increases steadily with age, with an exaggerated increase for those with dementia. This study's objective was to examine whether this effect can be observed in 60 year old adults. Forty-seven adults (two age groups: 20-29 and 60-69 years) from the San Diego area participated in the experiment. The analysis compared the ERP response in young adults (20-29) and older adults (60-69). The present study utilized the stimulus odor, amyl acetate, delivered through an olfactometer for 20 trials. In this single stimulus paradigm, participants were instructed to press a response key once they perceived an odor. OERPs were recorded at Fz, Cz, and Pz electrode sites and latencies were averaged. Analysis of variance revealed that there was a significant difference in P3 latency in the two age groups at each electrode site. Older participants had longer latencies compared to their younger counterparts. Thus, this study supports the notion that P3 latency increases from age 20-29 to age 60-69. Supported by NIH Grant DC02064 to Claire Murphy. Roberto Zamora was supported by the SDSU MBRS/IMSD Program 2R25GM058906-09A1

Session A-1

Poster: Cognitive Process I

Friday, February 27, 8:45 am – 10:15 am

Location: Montezuma Hall South

#11 8:45-10:15 am

**Assessing the Validity of the 50-item IPIP Five-factor Model Measure**

Lindsay Palmer, Psychology
Mark Ehrhart, Psychology

In recent years, the use of personality testing has increased in a variety of settings. For research in applied settings in particular, it is essential that relatively short measures of the Five-Factor Model (FFM) of personality be validated. The International Personality Item Pool (IPIP) was developed by Goldberg (1999) to create non-proprietary measures in the public domain for use by the international scientific community. The 50-item FFM scale from the IPIP has been growing in popularity, particularly among industrial/organizational psychology researchers (e.g., Ehrhart, Roesch, Ehrhart, & Kilian, 2008; Lim & Ployhart, 2006). Because...
it is a relatively new measure, ongoing research is necessary to access its measurement properties. The purpose of the present study is to assess the factorial and construct validity of the 50-item IPIP FFM measure. Participants were 3137 students at a large West Coast University. The first set of analyses focuses on the reliability and item statistics for each of the FFM dimensions. Next, the results of confirmatory factor analyses for each individual item will be presented, followed by an overall confirmatory factor analysis for all five dimensions. This analysis includes a summary of the latent correlations among the dimensions and of the factor loadings for the individual items. Finally, the construct validity of the measure will be assessed by investigating the latent correlations between the FFM dimensions and several other psychological constructs (e.g., anxiety). The discussion will focus on the overall performance of the 50-item IPIP FFM measure and on specific areas for improvement at the dimension and item levels. Implications will be discussed regarding future research and use of the measure in applied settings.

#12 8:45-10:15 am

Can Preschoolers Tell a Story?
Anna Fitzhugh, Psychology
Judy Reilly, Psychology

The MacArthur-Bates Communicative Developmental Inventory (MB-CDI) is a parental report measure that assesses language skills such as expressive vocabulary and complexity of utterances in infants and toddlers; however, it is only suitable for children up to 30 months of age. Important language skills, especially discourse abilities, begin to develop during the preschool period. As an extension of this tool, the present study aims to develop a language and narrative assessment measure for children in preschool and kindergarten. Language samples and narratives were collected to characterize language abilities at the level of microstructure (vocabulary and syntax) and at the level of macrostructure (story content and cohesiveness) during the preschool period. Twenty-four children ages 3;0-5;11 were presented with two sets of four pictures and asked to tell a story describing each set of pictures. Children were placed in groups according to age in six month intervals. Children also performed a sentence repetition task as a control for linguistic ability. Narratives were transcribed using the CHILDES system and analyzed for vocabulary, sentence complexity, and story content, and coherence. Results showed a qualitative shift in narrative production skills at age 3 years, 6 months. Prior to this age the childrens narratives showed little cohesion in story theme and progress. Sentence complexity also increased with age. Typical 3 year old responses included either single noun or single verb responses, whereas 4 and 5 year olds used simple and complex sentences to describe the pictures. The present study maps the developmental trajectory for language and discourse during the preschool period. Data from childrens narratives will be used to devise a parental report narrative task for the Communicative Developmental Inventory for children ages 3;0-5;11 years.

#13 8:45-10:15 am

Predicting Future Stock Success: Company Name Complexity, Processing Fluency, and Consumer Confidence
Carly S. Hennessy, Psychology
David Armor, Psychology

During difficult economic times, understanding the psychological processes involved in predicting stock success becomes increasingly relevant. A recent experiment by Alter and Oppenheimer (2006) found that the complexity of a stock company’s name can influence expectations about the future success of that company’s earnings, with participants expecting that simply-named companies would outperform complexly-named companies in the stock market. Alter and Oppenheimer interpreted this result in terms of processing fluency, arguing that complex names are harder to process psychologically, and that difficult to process information is interpreted negatively, leading to more negative evaluations of future stock performance. However, Alter and Oppenheimer did not provide a direct test of this processing fluency interpretation of the name complexity effect. The present study has two primary aims: (1) to replicate the Alter and Oppenheimer (2006) name complexity effect, and (2) to provide more direct tests of the processing fluency hypothesis. Drawing from past research, our experiment tested the processing fluency hypothesis in two different ways. First, previous research has shown that processing fluency can influence other evaluations that may be relevant to stock evaluations (e.g., how familiar the name of the company seems); therefore, if processing fluency can explain the name complexity effect in stock evaluations, then name complexity should influence these other ratings (Hypothesis 1). Second, research has also shown that focusing attention on the source of disfluency can eliminate processing fluency effects (Schwarz, 2004); therefore, focusing attention on disfluent aspects of a company’s name (i.e., how pronounceable the name is) should reduce the name complexity effect (Hypothesis 2). METHOD: We tested these hypotheses in an experiment in which participants (N = 95) were asked to estimate the future performance of 14 fictitious stocks, half of which had relatively simple names (e.g., Barnings, Mayville) and half had relatively complex names (e.g., Yoalumnix, Xagibdan). RESULTS: Analyses revealed clear support for the name complexity effect, with simply-named stocks expected to gain in value (M = +3.47%) and complexly-named
Effect of Static Versus Dynamic Images on Recall
Sara Kazemi, Psychology
Stephen Reed, Psychology

This study investigates the possibility that dynamic imagery is more potent than static imagery as a learning method. To manipulate the exclusive use of either static or dynamic imagery, participants were instructed to use one versus the other as they attempted to encode a list of concrete nouns for subsequent recall. After recall, participants reported what strategies they used by allocating a percentage amount to options—static imagery, dynamic imagery, verbal rehearsal, and/or semantic association. This revealed that participants across groups used a mix of strategies, and didn’t reliably favor the strategy intended to be primed. This made it discouraging to commit to a between-groups analysis. Employing an across groups analysis, the reported use of each encoding strategy was compared to the percentage of words recalled. A significant positive correlation between the use of dynamic imagery and recall was revealed. Conversely, the use of verbal rehearsal and recall were negatively correlated. Recall was not significantly influenced by the use of static images or of semantic associations. Though dynamic imagery shows promise as a metacognitive strategy for recalling words, it was rarely implemented.

To Tell or Not to Tell?: Pointing Out Others Embarrassments
Christopher Fowler, Psychology
David Armor, Psychology

Research on embarrassment has tended to focus on the causes and consequences of embarrassment for those who have been embarrassed. With this study, we were interested in the effects of witnessing an embarrassing situation (i.e., how do people respond when seeing another person in an embarrassing situation?) and, in particular, in the factors that might influence whether people would inform another about their potentially embarrassing circumstances. We conducted an experiment in which we manipulated several factors that were hypothesized to influence the likelihood of telling an individual of an embarrassing occurrence that is affecting them. METHOD: Participants (N = 177) were asked to imagine seeing another person who either had unzipped zipper or gum on the back of their pants. We experimentally manipulated whether participants were asked to imagine that this person was a friend or a stranger, and whether the person was on their way to a job interview or to meet with friends. Participants were then asked to report the likelihood that they would tell the individual of their embarrassing appearance. HYPOTHESES: Because people tend to feel greater empathy towards friends than strangers, participants were hypothesized to be more likely to inform friends of their embarrassing appearance than strangers. In addition, as potential consequences for the embarrassed individual may be worse in professional than casual situations, participants were hypothesized to be more likely to inform individuals in a professional than a casual situation.
RESULTS: As hypothesized, participants were significantly more likely to inform friends than strangers, and in professional rather than casual settings. In addition to our hypothesized results, we also found that participants were more likely to inform the individual of their embarrassing appearance if the person had gum on their butt rather than their fly being down, and that this was especially likely to be true if the other person was a stranger as opposed to a friend. These results portray embarrassment as a social phenomenon that can be influenced not just by the embarrassing occurrence and the people involved, but the nature of the situation itself. Implications Discussed. Chris Fowler was supported by the San Diego State University NIH/NIGMS Minority Biomedical Research Support Program (MBRS/IMSD) 5R25 GM58906-07.

#17 8:45-10:15 am

The Effects of Coworker Relationships on Counterproductive Workplace Behaviors

Morgan Da Costa, Psychology
Richard Graf, Psychology

The present study examined three variables that were predicted to have an effect on counterproductive workplace behaviors: strength of positive coworker relationships, competitiveness, and gender. It was hypothesized that the amount of CWBs would be greatest for high strength relationships, less competitive jobs, and male homogenous relationships. Two hundred and sixty participants completed a survey on coworker relationships and CWBs. The survey used a Likert scale to assess individual CWBs and the likelihood to report a coworker’s CWBs. Results were mixed in support of the hypothesis. Significant interactions were found among strength by gender and strength by commission. A main effect was found for commission ($p < .10$). Future research should examine under what conditions CWBs are most pronounced.

Session A-1
Poster: Astronomy
Friday, February 27, 8:45 am – 10:15 am
Location: Montezuma Hall South

#18 8:45-10:15 am

Refining the Neutron Star Mass Determination in Six Eclipsing X-ray Pulsar Binaries

Meredith Rawls, Astronomy
Jerome Orosz, Astronomy

X-ray binary systems where the X-ray source is a pulsar can be ideal systems for a dynamical determination of the neutron star’s mass. The orbital period, the semiamplitude of the optical star’s radial velocity curve, the duration of the X-ray eclipse, and the projected semimajor axis of the pulsar’s orbit (measured from the pulse arrival times) can be combined to yield the masses of both stars. We consider six systems where the needed measurements have been made: Vela X-1, 4U 1538-52, SMC X-1, LMC X-4, Cen X-3, and Her X-1. In previous studies, two approximations have been used to determine the neutron star’s mass, which involve (1) the computation of the effective Roche lobe radius, and (2) the computation of the X-ray eclipse duration. We use an “exact” numerical code based on Roche geometry and a genetic optimizer to analyze the published data for these systems. We compare this method to the traditional analytic approach and find slightly larger neutron star masses for the majority of the systems.
#21  8:45-10:15 am

*On the Progenitor of Supernova 1999em*

Paul Nied, Astronomy
Douglas Leonard, Astronomy

The purpose of this study is to use archived data from the Hubble Space Telescope to establish a lower mass limit to the progenitor of the type IIP supernova SN 1999em in NGC 1637. This will be done by creating color magnitude diagrams of the stars in the immediate vicinity of the supernova sight, then comparing their distribution to theoretical evolutionary tracks of high mass stars as they leave the main sequence.

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Session A-1
Poster: Engineering
Friday, February 27, 9:30 am – 11:00 am
Location: Montezuma Hall South

#22  9:30-11:00 am

*Modeling Hilly Urban Canopy Using Immersed Boundary Method in Large Eddy Simulation*

Long Sun, Mechanical Engineering

Faithful modeling of interaction between flow and urban canopy is a key step to describing the water, heat and momentum transport in the urban atmospheric boundary layer. However, most Large Eddy Simulation (LES) codes for the atmospheric boundary layer are limited to cube shaped buildings on the flat land surface. The Immersed Boundary Method (IBM) as implemented at UCSD can be used to simulate flow around any obstacle without changing the pseudospectral numerical method on the cartesian grid. The Lagrangian dynamic Subgrid-scale (SGS) is implemented to model the effect of the unresolved scales on the resolved LES flow field through local scale-dependent auto-calibration of the Smagorinsky coefficient. Numerical simulations of the flow over an urban canopy immersed into a two-dimensional sinusoidal land surface and were carried out. The effect of critical parameters such as building height to hill height and building spacing to hill spacing on the flow in and above the urban canopy was examined.

#23  9:30-11:00 am

*Effect of Die Shape on Spark Plasma Sintering of Alumina*

Evan Khaleghi, Mechanical Engineering
Eugene Olevsky, Mechanical Engineering

Spark Plasma Sintering is a hot, new research topic, utilizing the effects of electric current to enhance the well-understood process of sintering. Most active research in this field uses a standard cylindrical die for specimen preparation during the spark plasma sintering process, but almost all of the industrial applications for traditional sintering are for parts with complicated, non-cylindrical shapes. We investigate, and compare, the effects on spark plasma sintering using the standard cylindrical die, and a square die, in the areas of heating time, particle size, and pressure, to find their effect on final porosity. We chose Alumina powder as the material for investigation, as it is one of the most widely used, and investigated, powders used in sintering.

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#24  9:30-11:00 am

*Mobile Node Tethering using Self-organizing Ad-hoc Wireless Network*

Vaibhav Nagarnaik, Electrical Engineering
Yusuf Ozturk, Electrical Engineering

This thesis aims to develop an algorithm which will direct a mobile wireless node to track the movement of another wireless node using the Link Quality of connection. The goal is to create a tethered network of mobile nodes which will position themselves such as to maintain best possible Link Quality of connection throughout the network.

#25  9:30-11:00 am

*Computation of a Normal Shock Running into a Cloud of Particles*

Thomas Dittmann, Aerospace Engineering
Gustaf Jacobs, Aerospace Engineering

Two-dimensional particle-laden flow developments are studied with a bronze particle cloud in the accelerated flow behind a running shock. The forty thousands particle clouds are arranged initially in a rectangular, triangular and circular shape. The flows are computed with a recently developed high-order 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. A high-order ENO interpolation determines the carrier phase properties at the particle location. A high-order central weighing deposits the particle influence on the carrier phase. 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 pulls 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.

**#26  9:30-11:00 am**  
*Expansive Soils*  
Laura Adona, Civil Engineering  
Julio Valdes, Civil Engineering  

Often times expansive clay soils are referred to as “problem soils” due to the damage caused by the shrinkage and swelling of clay. Swelling-induced cracks may occur in pavements and other structures and can be costly to repair. This study examines the efficiency of using a recycled granulated tire rubber pack as an inclusion to reduce the swelling of expansive soil specimens. The experiments involve one-dimensional swelling tests on an expansive clay matrix containing a rubber or sand pack. Experiments could potentially lead to a technique utilized for the mitigation of clay swelling.

**#27  9:30-11:00 am**  
*Biomimetic Design of a Flexible Airfoil*  
Joseph Marrocco, Aerospace Engineering  
Satchi Venkataraman, Aerospace Engineering  

The practical application of relatively small, light weight micro air vehicles by biomimicry is of great interest to the engineering community. Innovative and interesting approaches to solving this problem are currently being addressed. However, the goal of this research is to investigate if flexible wing joints in an airfoil improve the flight capabilities and maneuverability of dragonfly wings. 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. As well as achieve an assortment of different flight patterns such as gliding, synchronized-stroking, phased-stroking, and the very efficient counter-stroking. The wings basic design is a pleated membrane stiffened by tubes at the apices of the pleats, forming a particularly rigid and strong structure. This tubular pleated membrane, responds similarly whether loaded form above or below, deforming with the increase in horizontal or vertical forces. Unlike many man made airfoils which are designed to resist all aerodynamic forces they encounter, dragonfly wings have developed to yield briefly, without damage, and to recover immediately. These ultra light flexible airfoils perform all of these roles extremely well, despite the fact that they are largely passive flight structures. The dragonfly wings innate ability to deform is generated by an elastomeric protein.

It is located in specialized regions of the cuticle that require flexibility. It is these flexible regions or joints that have become a particular interest to this study. As part of this work, a computational method will be used to mimic the flexible wing design of a dragonfly. A general purpose finite element program is used to model the flexible wing joints in a standard airfoil design, under externally applied loading. In combining span wise rigidity under normal conditions with the ability of yielding reversibly under excessive loads, the pleated, and veined wings of Dragonflies demonstrate an elegant solution to insects’ requirements for stiff, durable, ultra-light aerofoil for high-performance flapping flight.

**Session A-1**  
Poster: Gene Expression  
Friday, February 27, 9:30 am – 11:00 am  
Location: Montezuma Hall South

**#28  9:30-11:00 am**  
*Linguistic Analysis of Unknown Metagenomic Sequence Data*  
Victor Seguritan, Biology  
Anca Segall, Biology  

A small percentage of genomic and metagenomic sequence data are significantly similar to known sequences by homology. Sequence homology is commonly used to assign a putative function to genes from novel genomes or metagenomes. A recent functional metagenomic profiling of nine biomes, for example, generated approximately 1.4x10^7 microbial and viral sequences from which only 10% were significantly similar to sequences with known functions. A method is needed that assigns putative functions to sequence data which does not rely on sequence homology alone. The origin of this bioinformatic analysis comes from the application of linguistic methods to the analysis of DNA sequences. Linguistic elements, such as syntax, have been modeled in biological sequences data shortly after the discovery of the structure of DNA molecules in 1953. The syntax and semantics of several model proteins will be determined, including major capsid protein, DNA polymerase, and helicase. These proteins are encoded in a large number of phage genomes. The syntax of the model proteins will be represented as Context Free Grammars (CFG), whereas the semantics of the model proteins will be represented as Latent Dirichlet Allocations (LDA). The CFGs and LDAs of model proteins will be used to identify the presence of sequences that encode model proteins from the unknown metagenomes. In doing so, putative functions may be assigned to unknown metagenomic sequence data in a manner that is similar to understanding the meaning of language through syntax and semantics.
ABSTRACTS

#29 9:30-11:00 am

**Regulation of Gene Expression by the microRNA miR-124 in the Developing Nervous System of C.intestinalis**

Jerry Chen, Biology
Robert Zeller, Biology

Small regulatory molecules called microRNAs are vital to normal tissue differentiation and development. Using the ascidian Ciona intestinalis as a model organism, we wish to study the role of microRNAs in the differentiation and development of neurons. Ascidians, more commonly known as sea squirts, are invertebrate marine animals that have a simple nervous system ideal for studying the physiology of neuronal development. Our lab has begun identifying the network of genes and transcription factors involved in neuronal differentiation in C.intestinalis. My work will involve identifying and elucidating the role of specific microRNAs within this regulatory network. Specifically, I will be focusing on genes immediately downstream of miR-124, which has been shown to promote the expression of pro-neural genes in other organisms by de-activating relevant gene repressors. miR-124, which is expressed in the human nervous system as well, may be a major player in the regulatory network controlling the differentiation of a cell into a neuron. My studies will hopefully give us some insight into the molecular basis of neural developmental disorders.

#30 9:30-11:00 am

**Combining In Vivo and In Silico Screening for Protein Stability**

Nesreen H. Barakat, Chemistry
John Love, Chemistry

The correlation between protein structure and function is well established, yet the role stability/flexibility plays in protein function is being explored. Here, we describe an in vivo screen in which the thermal stability of a test protein is correlated directly to the transcriptional regulation of a reporter gene. The screen readout is independent of the function of the test protein, proteolytic resistance, solubility or propensity to aggregate indiscriminately, and is thus dependent solely on the overall stability of the test protein. The system entails the use of an engineered chimeric construct that consists of three covalently linked domains; a constant N-terminal DNA-binding domain, a variable central test protein, and a constant C-terminal transcriptional activation domain. The test proteins are mutant variants of the beta1 domain of streptococcal protein G that span fairly evenly a thermal stability range from as low as 38 degrees C to above 100 degrees C. When the chimeric construct contains a test variant of low thermal stability, the reporter gene is up-regulated to a greater extent relative to that of proteins are mutant variants of the beta1 domain of streptococcal protein G that span fairly evenly a thermal stability range from as low as 38 degrees C to above 100 degrees C. When the chimeric construct contains a test variant of low thermal stability, the reporter gene is up-regulated to a greater extent relative to that of less flexible variants. A panel of nine Gbeta1 mutant variants was used to benchmark the screen, and spectroscopic methods were employed to characterize the thermal and structural properties of each variant accurately. The screen was combined with in silico methods to interrogate a library of randomized variants for selection of mutants of greater structural integrity.

#31 9:30-11:00 am

**Correlating Genotype to Phenotype in Bacterial Strains.**

Katelyn McNair, Biology
Robert Edwards, Computer Science

The number of complete microbial genomes will soon reach 1000, but what these microbes are doing in-situ is still unclear. We have predictions about what genes are present and what is going on inside the cell. As a way to test these hypotheses, what we know at the genome level of a microbe was related to what we know at its phenotypic level. Biolog recently ran experiments where they found what strains of bacteria will metabolize on limited media with a single compound added. This data tells us what a bacterium can utilize as a carbon source; nitrogen source; or even whether it can tolerate certain chemicals. This data was used to find all genes involved in reactions of the compounds tested. The presence of such genes was statistically compared to whether that bacterium can metabolize in the presence of that compound. It was found that there is a positive correlation between the number of gene pathways present in a genome that can utilize a given compound and whether that bacterial strain has been shown to metabolize in the presence of that compound.

#32 9:30-11:00 am

**New Complexes For Potential Uses in Environmental and Biomedical Applications**

Marcel Hetu, Chemistry
William Tong, Chemistry and Biochemistry

A new series of mononuclear transition metal complexes bound to the sulfonate-containing ligands, 2-(2-(pyridin-2-yl)ethyl-ammonio)ethanesulfonate 3-(2-(pyridin-2-yl)ethylammonio)prop-1-sulfonate and 2-(pyridin-2-y1methylammonio)ethanesulfonate, have been synthesized and characterized. These complexes have been reacted with the activated phosphodiest-ester bis(4-nitrophenyl)phosphate and have exhibited high rate enhancement over uncatalyzed reactions. Inhibition studies have also been done with copper (II) complexes to test dependence of a bound vs. free sulfonate moiety on decreasing product inhibition. The complexes were also reacted with pBluescript KS(-) plasmid DNA to test for their ability to act as an artificial non-specific restriction enzyme. These complexes could eventually be utilized as artificial metallohydrolases with potential uses in environmental and biotechnology applications.
Cytosolic Free Calcium Regulation During Contraction of the Neonatal Cardiac Cell: Exploration Using Gene Silencing Methods

Fiyinfoluwa K. Ani, Biology
Paul Paolini, Biology

The release and reuptake of free calcium during contractions of neonatal myocytes are controlled by three membrane channels, the Ryanodine receptor calcium release channel (whose expression level is set by several ryanodine genes, primarily Ryr2), the SR SERCA pump (coded by SERCA genes Atp2a2 and Atp2a3), and the Na-Ca exchanger plasma membrane channel NCX (genes Slc8a1, Slc8a2). Earlier studies from our laboratory have demonstrated a positive inotropic effect of the diabetogenic drug rosiglitazone via the calcium signaling pathway controlling the contraction-relaxation events of the twitch. To understand the effects of how these three gene families interrelate, we performed knockdowns of the primary target gene in each family, one at a time, using interference RNAs (siRNAs). It has been reported (Seth et al. PNAS 101 p.16683, 2004) that a decline in SERCA expression by gene silencing is compensated for by an increase in NCX expression. We began by confirming this finding using a different means of cell transfection. In our experiment, RNA interference was accomplished using FuGENE6 as the transfection reagent. Calcium transient magnitudes and contraction time courses were compared with gene expression results from qPCR, Western blot, and microarray analysis. We are attempting to complement these measurements by modulating the expression of the ryanodine receptor to control the amplitude of the calcium transient. We observed that the SERCA suppression was accompanied by up-regulation of the NCX gene and that the down-regulation of NCX was accompanied by a subsequent up-regulation of SERCA. Two exponential decay curves with distinct time courses can be extracted from the calcium transient signal, one for SERCA (fast) and one for NCX (slow). These channels work in a compensatory fashion to reduce cytosolic calcium during myocardium relaxation. Expression of both genes is affected by cell treatment with rosiglitazone over a forty-eight hour period. These experiments demonstrate the control of calcium release and re-uptake in the myocyte, and the effect of rosiglitazone on enhancing these processes by altering gene expression levels in the calcium signaling pathway. (Supported by the NSF LS-AMP, the Computational Science Research Center, the California Metabolic Research Foundation, and the Rees-Stealy Research Foundation.)

Level of Gene Expression in Neonatal And Adult Cardiocytes Calcium-pathway Due to Rosiglitazone Treatment

Kirubel Gebresenbet, Biology
Paul Paolini, Biology

Cardiovascular failure is the number one risk factor in diabetes and the leading cause of death among diabetics. Earlier studies have shown that, rosiglitazone (Avandia©, GlaxoSmithKline), a widely prescribed anti-diabetic drug, can improve heart performance. To further investigate the underlying cellular basis for heart failure, we have analyzed the metabolic pathways involved in calcium signaling in the heart cell, and their links to gene expression. Studies of rosiglitazone effects on calcium regulation in rat ventricular myocytes during excitation-contraction calcium transient decay rates and SERCA2 gene expression level showed that this drug makes cardiomyocytes contractions faster and stronger. Later studies using microarray analysis followed the genetic profile of neonatal cells in response to rosiglitazone over a 48 hour period will be analyzed. Validation will be assessed by studying gene product (protein) levels using Western blot analysis for ryanodine (Ryr2), SR SERCA pump (Atp2a3), and NCX (Slc8a) genes to demonstrate up-regulation of these genes as the source of enhanced contractility accompanying rosiglitazone treatment. Neonatal and adult cardiomyocytes treated with antibodies for the SERCA 2 calcium-ATPase, the ryanodine channel, and the sodium-calcium exchanger, NCX, were analyzed to see their gene product level in response to rosiglitazone treatment. AFP Film Developer processor (AFP Imaging Corp.) and the Eagle-Eye scanning densitometer (Storm 860, Molecular Dynamics, Inc) were used to analyze different time intervals of treatment, (1/2, 1, 2, 6, 12, 24, 36 and 48 hrs) to determine quantities of gene product.

Visualized Microbial Genetic Diversity of the Line Islands

Nicholas Celms, Computer Science
Robert Edwards, Computer Science

The Line Islands offer a rare opportunity to study human influence on microbial lifeforms, due in part to the location of the islands (they’re in the middle of the Pacific Ocean) but also to the varying levels of population across the islands. By collecting samples from sites with variable human exposure, metagenomes were sequenced that can be utilized to understand the evolutionary adjustments humanity imposed upon the microbial community. By creating a web application to graph the various metagenomic samples, the areas of interest in the microbial genomes that have occurred with speciation were identified. This tool offers a “zooming in” effect on the studied metagenomes,
helping to focus further research more narrowly. Multiple meta-
geomes were sequenced and genomic comparisons were done
using BLAST. The beta version of the web application serves as a
stepping-stone to further biological and computational research.
Further development goals with the application include broadening
accessibility and applicability. The same approach will answer
questions about many other environments, and could benefit other
research groups studying microbial metagenomes worldwide.

#36 9:30-11:00 am
Gene Expression Profiles Between Wild-type And
p53-knockdown/K-RAS-mutation HBEC Cell Lines
after Fe Particle Radiation
Denise Buenrostro, Biology
Paul Paolini, Biology

There are 170,000 new cases of lung cancer every year and 85%
of these cases die within a five year span. The NASA Specialized
Center of Research (NSCOR) project is interested in the effects
of space radiation that may increase astronauts’ susceptibility to
develop lung cancer later in life through environmental exposures
and interactions on earth. Galactic Cosmic Ray (GCR) exposure
has been a subject of concern for NASA for a long time, with
particular concern for long space missions on the International Space
Station and missions to Mars and the Moon. GCR consist mostly
of protons, helium nuclei, and HZE particles(2). HZE particles are
known to induce genomic instability, cytogenetic changes, and
contain genetic changes that are contributing factor to multistage
pathogens of lung cancer(3). HZE damaged cells would have an
increased risk of progressing toward lung cancer either through
further exposure to HZE particles or through exposure to other
environmental carcinogens potentially on return to earth(4). Iron
particles are of research interest because they are one of the
heaviest ions present in GCR, and its biological effects are poten-
tially severe due to its high atomic number. They have the potential
to penetrate the spacecraft hull and interior materials due to
their high energy. In this experiment human bronchial epithelial
cells (HBECs) are used because they can be used to develop
dose risk assessments of the effect of HZE particle irradiation.
HBECs were immortalized with telomerase (hTERT) and Cdk4 and
were further manipulated by knocking down p53 and expressing
mutant K-RAS gene(5). The focus was two HBEC cell lines; 3KT
and 3KTR53. The 3KTR53 cells contain the p53 knockdown and
the mutant K-RAS while the 3KT contained no induced mutations.
The objective was to observe the different gene expression re-
sponses between these two cell lines upon space radiation. Cells
were exposed to iron particle radiation at 0.5 Gy at several time
points (1,4,12,24 hrs). Illumina BeadArray technology was used
and data was analyzed. Data results confirmed that gene profiles
for the two cell derivative were significantly different. Changes
in 3KT genes were linked to tissue or organ development while
3KTR53 were linked to DNA replication and repair in functional
pathways. As a result, further studies need to focus on the effect
of Fe radiation on tumorigenic ability as well as the molecular
mechanism of different responses in these two cell lines.

#37 9:30-11:00 am
Changing Targeted Genes on Episomes through
the use of Phage Recombination Proteins in
Attempt to Improve Upon an Existing In Vivo
Screen for Protein Stability
Brandon Kim, Biology
John Love, Chemistry and Biochemistry

Proteins are ubiquitous in all life and they play a part in nearly all
of the complex biochemical processes in an organism. Protein
flexibility and stability is extremely important for understanding
how a protein is able to function as well as its ability to resist
proteolysis. In a previous project Nora Barakat and John Love
developed a unique in vivo screen for protein stability. This screen
takes advantage of Stratagene's Bacteriometach two-hybrid screen
for protein-protein interactions. What Nora had done was replace
these plasmids with a single chimeric construct allowing the test
protein to be between the lambda repressor protein and the alpha
subunit of RNA polymerase. It has been shown that the more
flexible the protein the higher reporter output can be observed.
The amount of reporter output observed is proportional to the
flexibility of the protein in question. This allows us to assign
relative flexibility to proteins studied. This screen has provided
profound data with regards to protein stability, however it has
its limits. The current reporter gene for this screen is one that
can be found on the Stratagene XL-1 Blue F strain. This strain
contains the F episome that has the construct needed for the
successful reporter output. Currently the reporter genes for this
screen include β-lactamase and β-galactosidase. β-lactamase
is the gene that confers resistance most lactam based antibiot-
ics, and β-galactosidase hydrolyzes lactose to glucose and
galactose. While being extremely useful, these reporters lack the
ability to be accurately quantifiable. The reporters used now can
not resolve between proteins with similar biophysical properties.
In this project we attempt to change the reporter genes on the F
episomes into a more quantifiable gene (GFP). This will be done
though the use of Red Swap that uses the recombination proteins
from a bacteriophage to precisely recombine targeted sequences
on a chromosome. This would allow us to assign a number
reflecting the relative flexibility of a protein giving us more insight
on the stability of the test protein. If this recombination is suc-
cessful it will be employed to swap in a death gene ultimately
allowing for the selection of stable proteins rather than flexible
proteins, opposite of what is currently available.
The accumulation of misfolded proteins in the endoplasmic reticulum (ER) causes ER stress. One signaling program used by the cell to attempt to resolve the stress is known as the unfolded protein response (UPR). Three proximal effectors of UPR signaling, PERK, ATF6, or IRE-1, are each ER transmembrane proteins attached to a chaperone, GRP78. We focus specifically on ATF6. Upon sensing an increase in improperly folded proteins, the chaperone GRP78 dislodges and ATF6 relocates to the Golgi where it is cleaved. The N-terminal portion of ATF6 then translates to the nucleus where it binds to ER stress elements (ERSEs) in the promoter regions of genes. We have previously shown that ATF6 can activate a putative ER stress response gene known as Derlin-3 (Derl3) in cardiomyocytes. Further analysis showed that Derl3 contains two consensus ERSE sequences. Oda et al. reported on the ability of Derl3 to accelerate the degradation of misfolded proteins in the ER. However, the pathway that activates Derl3 was not demonstrated nor its ability to clear misfolded proteins in cardiomyocytes. Lilley and Ploegh previously showed that another Derlin protein family member, Derlin-1 (Derl1), inhibited the degradation of misfolded proteins in the ER when a green fluorescent protein (GFP) was fused onto its C-terminus. The premise is that the bulky GFP moiety on the cytoplasmic tail of Derl1 interferes with its binding potential in the ER lumen, blocking misfolded protein clearance. Derl1 and Derl3 utilize similar mechanisms in ERAD. We propose that fusing GFP to the C-terminus of Derl3 will inhibit the degradation of misfolded proteins in HeLa cells. We will utilize a mutated version of alpha-1 antitrypsin (A1AT) to measure the effect of Derl3 on misfolded protein clearance. Mutant A1AT was shown to be terminally misfolded and retained in the ER. Western blot analysis using antibodies specific to mutant A1AT will enable the quantification of clearance obtained using our different forms of Derl3. The goal of this project is to understand the significance of Derl3s role in unfolded protein clearance to pave the way for experimentation using cardiomyocytes. Supported by the NIH/NIGMS SDSU MARC Program 5T34GM08303.
#40 10:15-11:45 am
A Consideration of Language Profiles, Demographic Data, & CELD-T Scores of Children Learning English as a Second Language
Stephanie A. Burgener, Speech, Language, and Hearing Sciences
Sonja Pruitt, Speech, Language, and Hearing Sciences

Children learning English as a second language (L2) demonstrate unique language profiles as compared to their typically developing monolingual peers. Current research shows that on standardized measures, characteristics of L2 language profiles appear to overlap with those with specific language impairment (SLI). This potentially results in the over-diagnosis of the L2 population as language impaired. The present study examines the relationship between L2 learners' demographic variables, linguistic profiles on standardized measures, and their levels of English proficiency as determined by the California English Language Development Test (CELD-T). Participants in this study include 32 typically-developing children attending kindergarten in a low socio-economic status (SES) district. These children (ages 66 months to 78 months) had limited English language exposure in the home. All participants were administered standardized tests use for diagnosis of language impairment in monolingual populations, including excerpts from the Test of Early Grammatical Impairment (TEGI, 2001), the Diagnostic Evaluation of Language Variation-Screening Test (DELV-ST, 2003), as well as a 30-minute language sample analyzed with the Systematic Analysis of Language Transcripts (SALT, 2006). Demographic variables of interest included maternal education and classroom language status (e.g., Biliterate or English-only). Language measures from these data will be examined in relation to the above demographic variables as well as to the children’s scores on the CELD-T, a required state test for L2 learners attending a California public school. Specific relationships between these complex variables will be discussed. Correct linguistic classification within this underrepresented population is a pressing responsibility of clinically-based speech-language pathologists. As such, the results of this study will have significant clinical and educational implications for L2 learners and those that serve this population.

#41 10:15-11:45 am
Past Tense Marking in Children Learning English as a Second Language: Implications of Similarities with Specific Language Impairment
Brittni Weaver, Speech, Language, and Hearing Sciences
Sonja Pruitt, Speech, Language, and Hearing Sciences

Research to date documents the similarities in expressive language patterns of typically developing children learning English as a second language (L2) and their monolingual peers who have been diagnosed with specific language impairment (SLI; Paradis, 2005). Across both groups, English grammatical morphology (e.g., past tense, third person singular, etc) surfaces as an area of particular difficulty. As such, typically developing English language learners (ELL) are often over diagnosed with clinical language impairments. The purpose of the study was to examine the rates at which L2 learners mark past tense across tasks and compare the results to those that have been documented in studies of monolingual English-speaking children with and without SLI. Thirty-two, typically developing children living in San Diego, with varying levels of English exposure took part in this study (L2). Data were generated from both an elicitation probe (adapted from the Test of Early Grammatical Impairment) and a spontaneous language sample collected during a 30-minute play session facilitated by toys. The children’s use of regular (e.g., walked) and irregular (e.g., fell) past tense was examined for both accuracy and error types. The results reveal a unique L2 profile. Specifically, the L2 group in the current study marked past tense at rates lower than what has been observed in previous studies of typically developing, English-speaking children (Oetting & Horhov, 1997). However, the L2 group marked past tense at rates higher than English-speaking children with SLI have demonstrated. Uniquely, the L2 group produced errors of nonstandard (albeit marked) commission (e.g., threwed, felled) that have been shown to be atypical for children diagnosed with SLI. These results demonstrate both similarities and differences between L2 acquisition of grammatical morphology and the profile of tense marking associated with SLI. Such findings have both clinical and educational implications.

#42 10:15-11:45 am
Typological Organization of Phonetic Inventories of English- and Spanish-speaking Children
Mary Orton, Speech, Language, and Hearing Sciences
Jessica Barlow, Speech, Language, and Hearing Sciences

The goal of the present study is to examine the sound systems of monolingual and bilingual English- and Spanish-speaking children in light of implicational hierarchies proposed for each language and how the development of bilingual inventories fits (or does not fit) into these typologies. Recent research has suggested that children acquire the phonology of their native language in a systematic and predictable way. Dinnissen, Chin, Elbert, & Powell (1990) captured this systematicity for English-speaking children in their five-tiered implicational hierarchy, and Cataño (2005) proposed a similar typology with relevant modifications for Spanish speakers. The present study seeks to provide further data to evaluate the claims for both languages, as well as analyze patterns of bilingual speakers. Post hoc analyses will be performed on archived data from the Phonological Typologies Laboratory at San Diego State University. Phonetic inventories based on a two-time occurrence of each sound will be gathered from
previously-transcribed speech samples of 57 monolingual and bilingual children from the Southern California area, ages 2:0 to 7:6 (years; months). All inventories will be examined with respect to the implicational hierarchy proposed for each language. Results from these analyses will have significant implications as they either support or deviate from the findings of previous studies regarding the typologies of the two languages. The examination of bilingual sound systems will shed light on the phonetic development of children learning two languages, and how a child’s bilingual status may affect expectations regarding their acquisition of sound classes. Clinical implications are related to the assessment of typically-developing and disordered bilingual children, as well as the selection of appropriate treatment targets.

#44 10:15-11:45 am  
Alternative Assessment of Language in Bilingual Populations  
Kylie Puckett, Speech, Language, and Hearing Sciences  
Sonja Pruitt, Speech, Language, and Hearing Sciences

Within the field of speech language pathology, clinicians are faced with the challenge of diagnosing language impairments in multilingual settings using tools developed for monolingual populations. Too often, typically developing, bilingual children score poorly on these standardized language measures. As such, alternative measures of language assessment have been suggested. The most popular measure advocated for is language sampling because conversing with a child is considered one of the best ways to learn about a child’s use of language. The truthfulness of this claim, however, is dependent upon the validity of the measures generated from the samples. Recently, the Systematic Analysis of Language Transcripts (SALT) software, which is used to facilitate the coding and analysis of language samples, has included comparison data collected from bilingual children in San Diego, California. The purpose of the current study is to determine whether the SALT normative database correctly classifies typically developing bilingual children. Twenty-eight, typically developing, Spanish-English speaking children participated in the study. All of the children attend an elementary school that serves low-income children in San Diego. Twenty-minute conversational language samples were collected from each participant. A graduate student in speech language pathology facilitated the language sample using a set of toys and picture description. Then, the samples were transcribed, coded, and scored using SALT. Using the SALT normative database, we compared the participants performance to the normative sample of bilingual Spanish-English speakers from San Diego. Our dependent measures included language measures often used to diagnose language impairments (Mean Length Utterance in both words and morphemes, total number of words, and type token ratio). Using a cut off score of +/- 1.5 standard deviations from the mean, we determined that the SALT database was accurate in classifying most of the children for most of the measures. This information has both clinical and educational implications. The findings support comparing bilingual children to other bilingual children and noting the subtle differences that distinguish a language difference from a language disorder, rather than using a one size fits all approach to language assessment.

#45 10:15-11:45 am  
Spoken and Written Language of English Language Learners  
Katherine Delgadillo, Speech, Language, and Hearing Sciences  
Jessica Barlow, Speech, Language, and Hearing Sciences

Previous research has already established that English Language Learner (ELL) students struggle with academics in general and reading in particular. ELL children make up 10% of students in U.S. schools and graduate high school with an eighth grade reading level on average. Public schools spend great amounts of time and money on reading programs to fix this problem. However, these statistics imply that there may be something more or even completely different that needs to be done to help with this issue. In the current study, 72 ELL students from kindergarten through second grade were administered standardized tests of reading, spelling, and vocabulary, as well as the Test of Narrative Language. Five sequenced pictures were shown and the child was to first make up a story that went with the pictures, write down the story they had just told, and finally read back what they had just written down. Narratives were coded for length, morphological error rate, and overall quality. Results showed significant morphological improvement between the kindergarten and first graders spoken narratives but no significant difference from the first to second graders. Similar results were shown for the written narratives. Although the quality and spelling of the narratives improved, the morphological error rate was comparable for both groups. The results suggest that the problem may not lie in teaching this population of students how to read but instead teaching them how to comprehend what they have read. If this is true, it could change the way ELL students are taught and increase their chances of success in the future.
Session A-1
Poster: Biomechanical and Mechanical Engineering
Friday, February 27, 10:15 am – 11:45 am
Location: Montezuma Hall South

#46 10:15-11:45 am
Attitudes about Optimism Among Vietnamese American Bilinguals: Evidence from a Cultural Frame Switching Experiment
My Le, Psychology
David Armor, Psychology

Do people from different cultures have a different outlook toward the future? Prior research has shown that people from individualist cultures like the United States tend to be more optimistic than people from more collectivist East Asian cultures (e.g., Heine & Lehman, 1995). Extensive research on optimism has been done comparing the individualist United States to collectivist cultures like Japan and China. However, little research has been done on Vietnamese culture and even less is known about Vietnamese Americans. It is hypothesized that, as bicultural individuals, Vietnamese Americans will hold elements of both American and Vietnamese cultures. METHOD: The present research explored the attitudes about optimism among Vietnamese Americans using the LOT-R, a commonly-used measure of dispositional optimism and pessimism Scheier, Carver, & Bridges, 1994). As a first step, this research involved developing and evaluating Vietnamese language version of LOT-R survey. The impact of culture was then examined experimentally by randomly assigning bilingual participants (N = 60) to complete the optimism questionnaire in either English or Vietnamese. HYPOTHESES: According to frame switching theory (Hong, Morris, Chiu & Martinez, 2000; Ross, Xun, & Wilson, 2000), bicultural individuals are able to go back and forth between two cultures depending on situational cues, such as language. To the extent that language evokes a coherent cultural system, and to the extent that the Vietnamese system promotes a less optimistic world view than the American cultural system, participants were expected to be more optimistic (and less pessimistic) if they had been randomly assigned to respond in English than if they had been assigned to respond in Vietnamese. RESULTS: The results revealed that, as hypothesized, participants who had been assigned to respond in English were significantly less pessimistic (M=2.49) than participants assigned to respond in Vietnamese (M=2.94) t (54) = 2.01, p = .05. Further, bilingual participants were more optimistic when responding in Vietnamese (M=4.03) than when responding in Vietnamese (M=3.81), though this difference was not statistically significant, t (55) = 1.12, p = .27. Among bicultural Vietnamese Americans, language appears to evoke the expectations of its culture.

#47 10:15-11:45 am
Computational Mechanics and Biomechanics
Richard Oka, Mechanical Engineering
Tom Impelluso, Mechanical Engineering

Recent advances in computational mechanics potentially allow simulations of more complex and varied mechanical systems. One area that will still benefit from these advances is biomechanics. A better understanding of how the body and the musculo-skeletal system tissues interact with the physical world, from a mechanics standpoint, will allow medical researchers to approach entirely new types of problems. For example: Examine how the disorders of the musculo-skeletal system manifest physically in gait or repetitive motion injury. Improve upon orthopedic implants, prosthetic devices, or repair materials derived from tissue-engineering through a systematic mechanical analysis. Create new ways to deliver or apply molecular biology or biochemistry-based treatments to the musculo-skeletal system. Performing these analyses of the human musculo-skeletal system poses interesting challenges to the applied mechanician. Current commercial analysis packages were intended for traditional machine design, and hence do not address the unique material properties, structural properties or types of load regimes seen in biomechanical systems. To this end, a comprehensive computational package is proposed to address these challenges.

#48 10:15-11:45 am
Sharp Biological Materials
Yen-Shan Lin, Mechanical Engineering
Eugene A Olevsky, Mechanical Engineering

Sharp biological materials including the proboscis of mosquito, the stinger of be and teeth from different animals are investigated under secondary electronic microscope. These sharp biological materials all have functional serration to increase the efficiency of biting or penetration. For example, the serration of proboscis of mosquito is used to reduce the pain while they are biting. The reverse barbs of the stinger of bee help the needle penetrate deeply into the prey and make it difficult to be pulled out from the prey. Teeth, the most important mineral tissue, are essential to the biting mechanism. In order to increase the biting
efficiency, the teeth of piranha and shark all exhibit serrated edge. The tooth is composed of outside enamel which is harder and inside dentin which is tougher. The dentin is made up most with collagen fibrils and carbonate apatite mineral. Hardness tests also conducted on the cross section of the teeth and the results show that the hardness value of the enamel is about 1.2-1.7GPa and the dentin is ranged from 0.2-0.5GPa. The dentin enamel junction is the transition region between dentin and enamel. The hardness value dramatic drop when the indent sites go from enamel to dentin.

**#50  10:15-11:45 am**

**Measurement of Fluid Mechanics of a Simulated LVAD Patient**

Gail Samaroo, Bioengineering
Karen May-Newman, Mechanical Engineering

The Left Ventricular Assist Device (LVAD) is a mechanical pump used for patients that suffer from congestive heart failure. It is surgically implanted in the chest and attached to the heart and circulation. The aim of this study is to evaluate the detailed fluid mechanics of the left ventricle for LVAD patients using particle-based flow visualization to study the flow through the left ventricle of the heart in a mock loop. A Micromed Debakey continuous flow LVAD is operated at three speeds: 7.6, 10, and 12.2 kRPM. Measurement of pressure and flow accompany the evaluation of the flow directions and patterns such as recirculation, stagnation, and velocity field measurements. A Digital Particle Image Velocimetry (DPIV) system captures a laser-illuminated plane of fluorescent particles flowing through a transparent rubber ventricle. A sequence of 50-100 images of the flow field were acquired at 9 Hz. Image data show a swirling pattern at the lower LVAD speeds that have a stable rotation point in the center of the ventricle. The highest LVAD speed exhibits a more chaotic pattern with 2 or more vortex centers that move during steady state flow conditions. Experimental results show that the average velocity of flow from the mitral valve toward the LVAD inflow conduit is greater than the average velocity of fluid recirculating away from the apex. The difference in average velocity between the two regions increases proportionally to the LVAD speed, transvalvular pressure, and LVAD flow. Bulk flow increased 58% from the lowest LVAD speed to the middle with a corresponding increase of 68%. From the middle to the highest LVAD speed, bulk flow increased by only 17%, which corresponded to an increase of 35%. The results of this study will aid in the understanding of the flow patterns in the heart during LVAD use and their potential link to pathological conditions.

**#51  10:15-11:45 am**

**A Finite Element Model of the Aortic Valve of LVAD Patients**

Mrunalini A. Joshi, Bioengineering
Karen May-Newman, Mechanical Engineering

A Left Ventricular Assist Device (LVAD) is a mechanical pump surgically connected to the heart and aorta in patients with congestive heart failure. It is designed to assist the function of the heart’s left ventricle, which delivers oxygenated blood from the heart to the body. The aortic valve, a delicate membrane structure, is positioned between the left ventricle and the aortic root. It prevents retrograde flow of blood into the ventricle during diastole. The biomechanics of the aortic valve are altered during periods of high LVAD support contributing to thrombotic problems and soft tissue remodeling. Remodeling is associated with changes in the geometry, structure and mechanical properties of the tissue system. Stress is considered to be an important biomechanical signal for remodeling. We hypothesize that stress in the aorta and valve leaflets is increased during LVAD use, which can lead to structural remodeling or valve dysfunction. Stress cannot be obtained by experimental measurements, but must be predicted from computational models. The aim of this study is to develop a computational model of the aortic valve during LVAD use within the finite element environment, Continuity, an academic software package from UCSD. This model requires a mathematical description of a realistic geometry, material properties and boundary conditions which are integrated in the finite element software. A recently published constitutive law was implemented in Continuity to model the aortic valve biomechanics. It specifies the mathematical relationship between material stress and strain and helps accurately predict the material behavior of the aortic valve leaflets. The correctness of the constitutive model implementation was verified from biaxial experimental results. Current work focuses on reproducing the geometry of the aortic valve. Physiological realistic loading and boundary conditions will be applied to the model and the stresses will be evaluated. The results will be used to better understand how the biomechanical alterations with LVAD use develop into functional problems within the cardiovascular system.

**#52  10:15-11:45 am**

**Effect of Leaflet Fusion on the Aortic Valve Biomechanics of LVAD patients**

Latha Ganesan, Mechanical Engineering
Karen May-Newman, Mechanical Engineering

Heart failure is a condition in which a patient’s heart is weakened and insufficient to pump blood to body tissues. Left Ventricular Assist Device (LVAD) is a mechanical pump used on these patients to enable increased blood flow from the heart to the rest of
the body. Previous studies show that long term use of LVAD support in a patient induces major alterations in the biomechanics of the cardiovascular system. The altered biomechanics increase the strain and the accompanying stress in the valve leaflets, resulting in a tissue remodeling response known as fusion. Fusion closes the commissures of the aortic valve. Our hypothesis is that fusion of the valve leaflets considerably decreases the flow through the valve, and further increases the strain on the already fused valve causing valve dysfunction. In this study we created the structural effect of leaflet fusion in the aortic valve by suturing two of the commissures. The effect of fusion on the aortic flow, the area of opening of the valve and the associated strain on the leaflets were all observed using a PIV system in which a camera records images of valve motion. The aortic and ventricular pressures, the aortic flow and the valve motion were measured before and after the simulated fusion under different LVAD speeds (7.6, 10 and 12.4 krpm) and cardiac contractility levels (off, low and medium). The preliminary results indicate that the duration of opening remains the same for the valve before and after the fusion whereas the maximum area of the opening of the valve after fusion was decreased by 60% compared to the area of opening of the valve before the fusion. The valve did not close completely after fusion leaving a non-zero minimum opening area whereas the valve completely closed before fusion. These initial results support our hypothesis that structural changes in the valve like fusion result in aortic valve dysfunction that causes reduced flow and aortic stenosis.

Session A-1
Poster: Adolescent Development
Friday, February 27, 10:15 am – 11:45 am
Location: Montezuma Hall South

#54 10:15-11:45 am
A Theory Based Intervention for Teen Relationship Violence
Tiffany Campbell, Child and Family Development
Audrey Hokoda, Child and Family Development

Teen relationship violence is rampant in today’s society. In fact, 1 in 5 girls report having experienced teen relationship violence. Many teens acquire information about violence from peers, family, media, and culture conveying that violence is convenient, acceptable, and/or even necessary, while lessons contradicting this violence are minimal. This poster presents a theory-based intervention program administered by an interdisciplinary group from San Diego State University involving students and faculty from the Public Health, Psychology, and Children and Family Development Departments. The intervention consists of an eight week curriculum aimed at influencing the knowledge, attitudes, and behaviors of teenagers concerning relationship violence and is based on constructs from Health Belief and Socio-Ecological Models. Students learn curriculum that addresses recognizing different types of relationship violence, being able to distinguish cultural experiences and concepts are not comparable to western ideologies (Yick & Berthold, 2005). For example, some Latinos do not define psychological abuse as relationship violence (Torres, 1991). There is a necessity to focus on young Latino youth because this population is often overlooked (OKeefe, 1997), and because there are factors associated with acculturation and acculturative stress that may relate to teen dating violence (Hokoda, Galvan, Malcarne, Castaneda, & Ulloa, 2007; Sanderson, Coker, Roberts, Tortolero, & Reininger, 2004). The purpose of this study was to examine individual factors (e.g., acceptance of violence beliefs, anger control skills, gender, ethnicity), family factors (e.g., exposure to family conflict, authoritarian and authoritative parenting, sibling abuse), peer factors (e.g., descriptive norms for TRV, positive peer dating relationships), and community factors (e.g., acculturative stressors) in relation to dating violence amongst 232 students (47% male, 53% female) ranging in age from 12-17 years (M = 14.92). These participants were recruited from a middle school and high school in an urban area in a Southwestern state in the U.S. Correlational analyses revealed that perpetration of TRV related to several individual factors (e.g., anger control, positive conflict resolution, acceptance of violence beliefs, anxious attachment), family factors (e.g., mothers and fathers power assertive parenting), peer factors (e.g., peer norms of TRV, positive peer dating relationships), and community factors (e.g., family acculturative conflict, ethnic identity problems). A logistic regression revealed that 3 variables made unique contributions to the variance in TRV perpetration: 1) anger control; 2) anxious attachment, and 3) peer norms of TRV perpetration.

#53 10:15-11:45 am
Individual, Family, Peer, and Community Factors Associated with Teen Relationship Violence
Manuel Angeles, Public Health
Audrey Hokoda, Child & Family Development

Teen relationship violence (TRV) is prevalent in our society (e.g., Avery-Leaf, Cascardia, OLeary, & Cano, 1997), and may be a precursor for later domestic violence amongst adults (Magdol, Moffitt, Caspi, & Silva, 1998). The research pertaining to teenage dating violence has been conducted with predominately middle-class Anglo youth (Price & Byers, 1999). While these findings contribute to a better understanding of the dynamics of teen relationship violence, these findings are just a suggestion of what may be expected to occur in other ethnicities. Cultural disparities have been reported specifically in circumstances where
between respectful and abusive behaviors, and understanding positive conflict resolution and social problem solving. Students will also be taught that violent behaviors are learned and can be controlled. The evaluation will entail a 2 (intervention/control group) x 2 (pre-test, post-test) research design. A questionnaire designed to measure changes in their beliefs (e.g., acceptance of violence beliefs, self-efficacy for anger control) and self reported perpetration/victimization of teen relationship violence will be administered, to roughly 50 adolescents before and after the intervention, and the results will be compared to teens surveys in the control group (50 students in a wait-list class). The findings are expected to indicate that the students who completed the intervention program will be less likely to endorse acceptance of violence beliefs, and will show an increased use of positive conflict resolution skills, and less jealous and violent behaviors.

#55 10:15-11:45 am

**Developmental Differences between Maternal Authoritarian Parenting and Depression Among Adolescents**

McKenzie Lewis, Psychology

Emilio Ulloa, Psychology

Research suggests that authoritarian parenting is positively associated with depression (e.g., Simons, Lin, & Gordon, 1998; Stocker, Burwell, & Briggs, 2002; Turner & Finkelhor, 1996). In addition, maternal parenting seems to have more of an effect on children than paternal parenting (e.g., Milevsky, Schlechter, Netter, & Keehn, 2006) and parenting appears to affect children differently at various periods of development (e.g., Roche, Ahmed, & Blum, 2008). The purpose of this study is to examine whether developmental differences exist in the relationship between maternal authoritarian parenting and depression. Two-hundred twenty-nine participants, recruited from seventh, ninth, and eleventh grade classes at a middle and high school in Southern California, completed self-report measures assessing their report of depressive symptoms, parents discipline styles, as well as, a number of related child and family constructs. A bivariate correlation revealed no association between maternal authoritarian parenting and depression in the seventh graders. For ninth graders, maternal authoritarian parenting and depression were associated ($r = .23$, $p < .05$), similarly, for eleventh graders, maternal authoritarian parenting and depression were associated ($r = .35$, $p < .001$). The results suggest that the relationship between maternal authoritarian parenting and depression may continually increase from seventh grade to eleventh grade. Implications for the development of curriculum addressing depression in adolescents will be discussed.

#56 10:15-11:45 am

**Depression, Parental Behavior, Adolescent Dating Violence Perpetration: A Mediation Model**

Amelia Weldon, Psychology

Emilio Ulloa, Psychology

Dating violence is sexual, physical, and psychological actions that attempt to control and harm another person in an intimate relationship (Wekerle & Wolfe, 1999). Dating violence is a problem prevalent among adolescents (e.g., Avery-Leaf, Cascard, OLeary, & Cano, 1997). Negative effects of dating violence perpetration include depression, low self-esteem, and physical injury. Due to these adverse outcomes associated with dating violence perpetration it is important to investigate possible antecedents. One antecedent identified in the literature is harmful family influences which incorporates both exposure to violence within the family environment and adverse parenting styles. For example, authoritarian parenting and parental conflict was positively associated with adolescent dating violence perpetration (Simons, Lin, & Gordon, 1998; Stocker, Richmond, 2007). Furthermore, harmful family influences have been positively associated with depression (e.g. Stocker, Burwell & Briggs, 2002), and depression has been positively associated with adolescent relationship violence perpetration (e.g. Keenan-Miller, Hammon, & Brennan, 2007).

Although prior research has identified individual relationships among depression, harmful family influences and adolescent dating violence, research has yet to explore depression as an explanation for the relationship between harmful family influences and adolescent dating violence perpetration. The present study examined this proposed relationship among adolescents (ages 12-17). Two mediational models were carried out testing depression as a mediator between harmful family influences and adolescent dating violence perpetration. Two constructs captured harmful family influences: authoritarian parenting and parental conflict. Significant relationships were found between both harmful family influences and adolescent relationship violence perpetration (authoritarian parenting: $ß = .24$, $p < .001$; parental conflict: $ß = .21$, $p < .05$) and depression (authoritarian parenting $ß = .35$, $p < .001$; parental conflict $ß = .33$, $p < .001$). Further, depression was positively associated with dating violence perpetration ($ß = .38$, $p < .001$). A Sobel test confirmed the indirect effect of the IV (with both constructs) on the DV by the mediator was significantly different from zero (authoritarian parenting: $z = 3.40$, $p < .001$, parental conflict: $z = 2.07$, $p < .05$). Results indicate that depression does mediate the relationship between harmful family influences and adolescent relationship violence perpetration. Implications of the findings are discussed.
The Importance of Timing and Typology in Relations Between Childhood Maltreatment and Early Adolescent Aggression and Delinquency

Alan Litrownik, Psychology
Danita Wynes, Psychology

Prior research has indicated a strong association between childhood maltreatment and adolescent aggressive and delinquent behavior. However, there has been little research on the impact of dimensions of maltreatment. The present study examined the relationship between neglect and physical abuse in childhood and the development of aggression and delinquency in early adolescence, focusing on two dimensions of maltreatment: type and developmental timing. Hypothesis 1 (single vs. multiple type): Youth with histories of both physical abuse and neglect will exhibit more aggression and delinquency at age 12 than those with one type of maltreatment. Hypothesis 2 (developmental timing): Youth with chronic childhood maltreatment will exhibit more aggression and delinquency at age 12 than those with early maltreatment alone. LONGSCAN San Diego youth (n = 330) are an ethnically diverse sample of children removed from their homes for substantiated maltreatment prior to age 4. For this study, children who had experienced neglect and/or physical maltreatment (n = 276) were included. Maltreatment was measured with Child Protective Services (CPS) allegations from birth through 12 years of age. For each type, developmental timing was coded as early (0-4 years) or chronic (0-12 years). Aggression and delinquency at age 12 were measured using the Child Behavior Checklist/4-18 (CBCL/4-18). One-way ANOVAs were conducted to test for group differences on aggressive and delinquent scores. For single versus multiple types of maltreatment, no significant group differences were found. For early versus chronic maltreatment, delinquency scores were higher for youth experiencing early only, and differed significantly from youth experiencing chronic maltreatment, F (1,192) = 9.602, p = .002. Similarly, aggression scores were higher for youth experiencing early only, and differed significantly from youth experiencing chronic maltreatment, F (1,192) = 5.418, p = .021. Follow-up analyses will test for interaction effects between timing and type using MANOVAs. The results of this research will improve our understanding of the negative impact of dimensions of physical abuse and neglect on aggressive and delinquent behavior, and will contribute to our ability to identify maltreated youth at elevated risk for these behavior problems.

Influence of Childhood Family Conflict on Early Adulthood Development

Cara Holt, Psychology
Barbara McDonald, Psychology

It can be argued that the greatest influence on a child’s development, and in turn, early adulthood development is the kind of parenting and family environment the individual experiences. The present study hypothesized that the level of conflict and responsibility present within the family as perceived by the young adult looking back upon their childhood relates to both family satisfaction and independence in early adulthood. A family survey was administered to seventy-three undergraduate students asking questions about family background and attitudes on current situations including independence, relationship with family, and level of responsibility as a child. Of the participants, seventy percent had parents still married. The age range was from eighteen to thirty-six years old with nineteen being male and fifty-four female. Sixty-seven percent of the participants reported that there was an average to high level of family conflict that occurred as a child and seventy-one percent reported that they had average to high levels of responsibility within their family during childhood. The data revealed significant positive correlations with medium to high effect sizes between the level of responsibility during childhood, and the attitudes toward figuring out one’s own problems, being financially independent, and valuing self-sufficiency. Furthermore, the higher the level of conflict experienced within the family background, the more the individual is dissatisfied with familial relations at the stage of young adulthood and the more self-sufficient they perceive themselves. The findings revealed no significant sex differences and no matter what the level of conflict, participants reported a high level of desire for a family of their own.

Depression as a Mediator Between Anxious/Ambivalent Attachment and Perpetration of Teen Relationship Violence

Neri Martinez, Psychology
Emilio Ulloa, Psychology

Over the past few decades, research has focused more attention to the role of adult attachment in romantic relationships. Based on the theories of Cindy Hazan and Phillip Shaver (1987), it is believed that individuals with certain attachment styles tend to have similar experiences in romantic relationships. Past studies have demonstrated positive associations between anxious/ambivalent attachment and depression (Gotlieb & Kassel, 1996),
as well as teen relationship violence and depression (Kaura & Lohman, 2007). In the current study, it is hypothesized that anxious/ambivalent attachment would be positively associated with teen relationship violence (TRV) perpetration. Additionally, we hypothesized that depression could mediate the relationship between anxious attachment and TRV. Data was gathered from a larger, longitudinal study conducted in a San Diego county middle school and high school. The current study used self-report surveys to measure possible risk and preventive factors in teen relationship violence. The participants were 239 male and female students (ages 13 to 17) from San Diego County with at least one dating experience. The scales of interest included: the Adult Attachment Scale (Collin & Read, 1990), CADRI (Wolfe et al., 2001), and the Depression Scale (Orpinas, 1993). Three regressions were run to test this mediation; results indicate that the criterion for a partial mediation was met: anxious attachment was related to TRV ($B = .347, p < .001$); anxious attachment was related to depression ($B = .434, p < .001$); and depression was related to TRV after controlling for anxious attachment ($B = .313, p < .001$). Further, a Sobel test confirmed the proposed indirect effect ($z = 3.903, p < .001$). Our results suggest that anxious attachment may be a possible antecedent for perpetration in dating violence and may be explained partially by depression. Future studies should analyze the different types of attachment styles in relation to dating violence perpetration and victimization.

Session A-2
Oral Presentation: Microbial Biology
Friday, February 27, 8:45 am – 10:15 am
Location: Calmecac

#60 8:45 am
Analyzing Information Content in Microbial Genome and Metagenome Sequences
Sajia Akhter, Computer Science
Robert Edwards, Computational Science

All DNA and protein sequence data contain inherent information. For an individual sequence read, Shannon’s uncertainty theory can be used to measure how much information is present. Here we show that the amount of information in sequences from metagenomes correlates with the number of similar sequences that will be found by comparison to databases of known sequences. Hence, a sequence with more information (higher uncertainty) has a higher probability of being significantly similar to other sequences in the database; in contrast random sequences are less likely to be similar to known sequences. Measuring uncertainty may be a rapid way to screen for sequences similar to things in the database, to prioritize assignment of computational resources, and to show which sequences with no known similarities are likely to be false negatives. To predict which sequences could be coding based purely on the information content in them, we compared the uncertainty of intergenic and protein-coding regions for complete bacterial genomes. The intergenic regions were likely to have same uncertainty as protein-coding regions, but were not predictive of the coding potential of short sequences. Amino acid content in a genome may reflect lifestyle restrictions of an organism and may also be predictive of coding potential. To compare the amino acid composition for each of the complete bacterial genome sequences we calculated the Kullback-Leibler divergence from the mean amino acid content. We demonstrate that (i) there is a significant difference between amino acid utilization in different phylogenetic groups of bacteria; (ii) the bacteria with the most skewed amino acid utilization profile are endosymbionts or intracellular pathogens; (iii) the skews are not restricted to one or a few metabolic processes but are common across all genomic subsystems; (iv) the amino acid utilization profiles strongly correlate with the genomes’ percent G+C composition.

#61 9:00 am
Antimicrobial Activity of DNA Repair Inhibitory Peptides
Ilham Niali, Biology
Anca Segall, Biology

Our laboratory has isolated d-hexapeptides that block the resolution of Holliday junctions by tyrosine recombinases, which catalyze DNA cleavage during site-specific recombination. Holliday junctions are structures that are also central intermediates of recombination-dependent DNA repair. Our most potent hexapeptide, wrwycr, is active as a dimer and binds specifically to Holliday junctions and other branched DNA intermediates. Peptide wrwycr is bactericidal against both Gram positive and negative bacteria, and has been shown to cause accumulation of DNA breaks, induce the SOS response, and cause cell filamentation. We investigated whether other DNA damaging antibiotics would lead to the formation of Holliday junctions and therefore provide more targets for wrwycr to bind. We used norfloxacin, a DNA gyrase poison that traps covalent enzyme-DNA complexes. These complexes collapse replication forks and generate double-stranded DNA breaks, thereby inducing the expression of DNA repair enzymes. We found that norfloxacin and wrwycr had a synergistic effect when used in bacterial cultures. Cells co-treated with both agents were killed more efficiently, and had greater DNA fragmentation and SOS induction compared to each single treatment.
Dengue viruses cause more human morbidity and mortality worldwide than any other arthropod-borne virus. Dengue fever and the more severe Dengue Hemorrhagic Fever (DHF) have spread to most tropical and subtropical regions of the world, threatening 2.5 billion people annually. Yet space-time epidemic transmission of dengue virus infection pose an intriguing epidemiological puzzle and are difficult to anticipate or explain. Understanding regional space-time dynamics of the transmission of multiple dengue virus serotypes is one of the most important unanswered questions for developing improved prevention strategies and more effective use of limited resources, especially for resource-poor, endemic countries that suffer recurrent epidemics of severe dengue disease. This research focused on the development of an empirical spatial-temporal framework for capturing key indices of virus transmission at a regional geographic scale and identifying underlying dynamics that explain the erratic space-time fluctuations in DHF epidemics in Thailand over 22 years. This spatial-temporal empirical study examined DHF incidence time series by province-month for each of 72 Thai provinces over 264 months. Using Fourier and Wavelet based spectral analyses, Empirical Mode Decomposition, linear regression, and correlation analyses, a multi-tiered observational framework of virus transmission was developed and compared with epidemiological theory. Spatial-temporal patterns were compared for: (1) multi-year oscillations in DHF incidence, (2) the extent of spatial synchrony in multi-year oscillations across provinces, (3) the changing age structure of the Thai population, (4) the basic reproductive rate (R0) for dengue transmission, and (5) serotype-specific incidence and inter-serotype synchronization among the 4 co-circulating serotypes in endemic Thailand. This framework provides insights into dengue transmission over a broad space and time window and reveals a systematic evolution of spatial structures in a regional transmission network over 2 decades. Oscillations vary systematically, expanding in geographical clusters and lengthening over time within any specific location. These patterns are linked to 3 underlying dynamics: (1) plunging birthrates and changes in population age structure, (2) level of co-circulation and competition among the 4 dengue virus serotypes, and (3) spatially-differentiated transmission intensities that regulate serotype mixing, resulting in rapidly evolving geographic patterns and spatially varying rates of progression. These insights provide a basis for prediction of future epidemic patterns and are intended to inform intervention planning. Local dynamics are not generally representative of more distant geographic locations. Consequently, a uniform approach to developing prevention strategies can lead to undesirable outcomes. Successful dengue prevention will depend heavily on whether interventions are geographically adaptive and sensitive to regional variations in core dynamics.

#63 9:30 am

iCRE-CVB3: A Molecular Reporter Virus to Identify Sites of Persistent Coxsackievirus Infection

Ross Rhoades, Microbiology
Ralph Feuer, Biology

The central nervous system (CNS) of neonatal mice is highly susceptible to infection by group B coxsackieviruses, and neural stem cells are preferentially targeted following infection. Infectious coxsackievirus B3 (CVB3) can be isolated from the CNS of neonatal mice up to ten days post-infection (PI). Additionally, the genome of the virus can persist within the neonatal CNS up to ninety days PI as determined by real-time RT-PCR, despite the lack of infectious virus. The aim of the current study was to generate a recombinant CVB3 expressing an improved eukaryotic codon version of CRE recombinase (iCRE-CVB3) which can catalyze the permanent expression of a reporter gene within infected cells. iCRE-CVB3 will be used in combination with the Z/EG dual reporter transgenic mouse line which constitutively expresses the lacZ gene in absence of CRE recombinase. However in the presence of CRE recombinase, a functional DNA rearrangement activates the expression of GFP. Thus, GFP is permanently expressed specifically within infected cells for the lifetime of the host organism, regardless of virus replication levels. Recently, we have generated a high titered stock of iCRE-CVB3 following transfection of in vitro transcribed viral RNA generated from our iCRE-CVB3 infectious plasmid clone. Although relatively large gene sequences placed within our infectious CVB3 clone may become unstable, our molecular analysis suggests the retention of the iCRE insert within a higher percentage of infectious iCRE-CVB3. Furthermore, we recently isolated neurospheres from Z/EG transgenic mice. These primary neural stem cells can be continuously passaged, express the lacZ gene, and can be induced to express eGFP following transfection of a plasmid expressing CRE recombinase. Experiments underway will determine if infection of Z/EG neurospheres with our iCRE-CVB3 viral stock will lead to eGFP mediated GFP expression. Eventually, Z/EG transgenic mice will be directly infected with iCRE-CVB3, and sites of viral persistence will be identified by the continued expression of GFP. Our ultimate goal is to use our iCRE-CVB3 in combination with these CRE-reporter mice to study the link between microbes and chronic diseases such as diabetes, myocarditis, and neurodegeneration. Utilizing our novel system, we expect that the connection between prior infection and eventual disease may become firmly established.
#64  9:45 am

**Insertion of EGFP between the Capping and Methylase Domains of Vesicular Stomatitis Virus L Protein Does Not Abolish Polymerase Functions or Virus Growth**

John Ruedas, Biology
Jacques Perrault, Biology

The nonsegmented negative strand RNA (NNS) viruses include several virulent human pathogens such as rabies, measles, and the highly lethal Marburg and Ebola viruses. Currently, no effective drug therapy exists against any NNS virus infection. These viruses each encode a virus-specific multifunctional RNA polymerase that is essential for virus proliferation and is therefore a promising target for future antiviral designs. However, the inability to crystallize the L polymerase protein and lack of structural information is hindering antiviral drug development. Thus, novel approaches are needed to gain insight about polymerase structure and function relationships. Bioinformatic studies reveal that the L protein is a modular protein comprised of six conserved domains linked by stretches of nonconserved sequences. The longest of these nonconserved stretches resides between domains V and VI, the viral mRNA-capping and cap-methylase domains, respectively. We show by recovery of a recombinant mutant virus (VSV-LEGFP) that this stretch in the L protein of the prototype NNS virus, vesicular stomatitis virus, tolerates insertion of the EGFP reading frame without abrogating polymerase functions or virus growth. Our comprehensive analysis of the mutant L polymerase function reveals that it has wild-type-like activity at 33°C but displays a major loss of function over a narrow range of temperature approaching 37°C. Mutant virus growth likewise presents a sharp temperature-sensitive profile with a two log decrease in titer at 37°C and more than four logs at 37.5°C. At permissive temperature, mutant viral RNA and protein accumulation mirrors that of wild-type infection, indicating that viral transcript capping and methylation required for translation are not disrupted by the EGFP insert. Most unusual is a two- to three-fold reduction of packaged mutant L protein in released virions compared to wild-type, a defect not seen before for NNS viruses. In addition, fluorescence microscopy images of VSV-LEGFP-infected cells show a preliminary view of VSV polymerase localization in live cells. Our studies suggest that the region immediately upstream of the methylase domain of NNS virus L proteins is remarkably tolerant of large insertions and may function as a hinge between functional domains.

#65  10:00 am

**Got Allergies?**

Scott Robinson, Biology
Ralph Feuer, Biology

Coxsackievirus B3 (CVB3), a neurotropic virus which persists in the CNS may permanently alter the expression inflammatory genes in the CNS. We wished to determine if a previous CVB3 infection during the neonatal period may provide a fertile field for accelerated or exacerbated neurodegenerative and autoimmune disease in the aging host. We utilized two contrasting mouse models of disease. The first mouse model employed hAPP751 transgenic mice. These mice express amyloid-β under the murine Thy1 promoter and reproduce aspects of Alzheimer’s disease-like pathology. The second utilized the experimental autoimmune encephalomyelitis (EAE) model of autoimmune disease in the CNS, whereby immunization with a myelin peptide leads to infiltration of pathogenic T cells and demyelination. In each model, 3 day-old pups were infected with a high dose of a recombinant CVB3 expressing eGFP (eGFP-CVB3). hAPP751 transgenic mice were found to be highly susceptible to infection, as compared to mock-infected control mice over a 7 month period. Ongoing analysis of CNS histopathology will help to determine if previous CVB3 infection led to an increase in amyloid plaque formation (as determined by immunohistochemistry staining with 4G8 antibody) in hAPP751 transgenic mice. In contrast to decreased survival in hAPP751 transgenic mice infected with eGFP-CVB3, mice suffering from EAE appeared to be protected if previously infected with eGFP-CVB3. Three months after neonatal infection, EAE was induced in these mice by immunization with MOG35-55 peptide emulsified in complete Freunds adjuvant. EAE scores (clinical signs of disease) were evaluated over 45 days, after which the mice were killed to determine relative levels of histopathology (Luxol fast blue/PAS staining), and demyelination (immuno-histochemistry for CNPase, myelin basic protein). Our results indicate that mice infected at an early age with eGFP-CVB3 showed reduced signs of disease (using an EAE clinical scoring system), as compared to mock-infected control mice. These results suggest that a previous neurotropic infection which persists in the host may differentially enhance or reduce a subsequent neurological disease. The induction of key inflammatory and cytokine genes and the nature of the neurological disease may be important determinants for the enhancement or reduction of disease following CVB3 infection.
**Session A-3**

**Oral Presentation: American Studies**

Friday, February 27, 8:45 am – 10:15 am  
Location: Casa Real

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**#100  10:15 am**  
**Investigating the Effects of Chromosomal Duplications on Fitness in Bacteria**  
Dave Matthews, Biology  
Stanley Maloy, Biology

Duplications of chromosomal regions occur frequently in bacteria and are thought to play an important evolutionary role. Duplicated genes have been proposed to be the principal source of new functions as one of the gene copies is free from selection and can diverge by acquiring mutations. Duplications also increase gene dosage, and can confer a selective advantage under nutrient-limited conditions. However duplications usually collapse without a selective force to maintain them. Most bacteria contain a single circular chromosome that replicates in a bidirectional manner from a single origin of replication. The two replication forks travel around each half of the chromosome, or replicore, until they collide in the terminus region. While most bacterial strains have balanced replicores, others have varying degrees of replicore imbalance. Replicore imbalance can arise by horizontal transfer of foreign DNA, or by chromosomal rearrangements, such as duplications, translocations and asymmetrical inversions that lengthen one replicore but not the other. While previous work suggests that extreme replicore imbalance is detrimental, the effects on fitness caused by replicore imbalance have not been well studied. To test the hypothesis that large duplications are deleterious due to replicore imbalance, Salmonella strains having between 5° to 23° of replicore imbalance due to chromosomal duplications were evaluated for relative fitness. We compared the growth rates of the duplication strains to the parental strain in rich and minimal media, and performed competition assays between the duplication strains and the parental strain. We found that the growth rates of most of the duplicated strains are similar and do not vary based on replicore balance. The competition assay results indicated that the location of the duplication on the chromosome had more of an affect on fitness than the size of the duplication. This study suggests that the actual genes duplicated affect fitness more than the introduced replicore imbalance. While these data do not support the hypothesis that replicore imbalance is deleterious, they imply an alternate reason for the fitness effects of duplications, and explain the observed variability found in naturally-occurring bacterial populations.

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**#66  8:45 am**  
**Lunar Dissent: An Exposé of American Antipathy Toward Landing Men on the Moon**  
George Aleman III, History  
John Putman, History

The 1969 moon landing is considered one of Americas shining achievements. There is a marked pattern of monolithic praise in the historical literature that gives an impression of unanimous admiration and suggests Americans united under the banner of Apollo 11. However, contrary to popular memory, the mission was not met with uniform approbation. In fact, like so much else in the 1960s, Project Apollo was vigorously debated, making it part of the larger story of that turbulent decade. Indeed, while protests lit up Americas city streets, the Soviet Union and the United States played chicken with nuclear weapons, and a hot war raged in the jungles of Southeast Asia, many Americans sharply criticized the man-to-moon project. Thus, Project Apollo did not bridge Americas cultural divide by the time of the 1969 moon landing. Throughout the decade politicians, intellectuals, and common citizens voiced their opposition to the Apollo Space Program. While some cynics deemed the project a misuse of scientific ingenuity for the purposes of prestige, others viewed it as a prime example of Big Government and an attendant to the Military-Industrial Complex that is, an apparatus steeped in an ethos of belligerent nationalism committed to imperial expansion. Still, others considered the program a profligate waste of money and resources that could have been used to engage social issues such as homelessness, healthcare, and education. Some of the antagonism toward Apollo was expressed more indirectly. While various citizens articulated their concerns about the extension of the Cold War into outer space and even pondered the moral and metaphysical implications of spaceflight itself, others worried over the possible repercussions wrought by such an application of science. There were also those who were merely indifferent about putting a man on the moon by the end of the 1960s. To these detractors, it was not a priority; the lunar project ranked below the obligations of work, need for economic security, and even the pursuit of earthly pleasures such as sports. These discordant sentiments, found
in newspapers, magazines, critical reports, and monographs of the time, are corroborated by a number of surveys conducted in the 1960s and 70s by organizations such as Trendex, Gallop, and Harris among others. In the 1960s, America struggled for unity. Citizens were divided over social issues and confused about the direction the country was headed. A nation rocked by assassinations, police brutality, massive protests, and a quagmire abroad, America yearned for a sense of hope. The 1969 moon landing seemed a pivotal moment for the acquisition of unity, a progressive development amidst the country’s divisive environment. But the lunar endeavor was not saluted in unanimity. Nurtured in an environment of foreign war, domestic upheaval, and social schism, Project Apollo, like other issues of the day, was subject to a new willingness among many Americans to challenge established authority and to scrutinize political decisions in moral terms. Certainly, Project Apollo was not immune from the divisiveness of the 60s. It was, in fact, a contributor, as people from all walks of life offered viewpoints throughout the decade that inquired as to the value and purpose of the project.

#67  9:00 am

The American Culture of Interaction: One Nation, Under God

Dennis Beesley, History
Edward Blum, History

Cultural identities exist on every level, from the individual to the nation. For instance, an individual living in the United States may identify with an ethnicity, gender, religion, community, state and nation, all with different cultural aspects. With all of these diverse identities, conflict threatens the American Union. In world history, interaction between different cultures was frequently accompanied by prejudice and feelings of superiority which often led to war. In the American case, conflict has always risen out of feelings of cultural inequality, whether it was regarding race, gender, or class. Early American leaders understood the dangers of cultural interaction, particularly in that religious difference was a common divider. As such, they attempted to lessen the crippling effects of intersecting identities by creating a unifying American culture. Ironically, while the United States was built upon principles of religious freedom and the separation of church and state, the American culture is itself a secular religious ideology. This essay examines one particular moment, the Missouri Crisis and Compromise of 1820, to reveal how and why this nation regularly presents religion in its own politics and literature. It will be shown how, in a democracy, religion is exercised to justify, solve and even take advantage of cultural crisis. An examination of crises dealing with race, gender, economy and empire will show that no methodological study of American cultural history is complete without addressing the role of religion.

#68  9:15 am

The Battle of Gettysburg in American Memory

Scott Shapiro, History
Edward Blum, History

My research project is titled “The Battle of Gettysburg in American Memory.” This project researches how one of the greatest battles in American history has been remembered through the years. The first chapter investigates the fifty years immediately following the battle and how both a historian John Bachelder, and President Lincoln’s famous “Gettysburg Address” vaulted the battle into monumental status. The second chapter discusses how the building of massive monuments helped many remember those who valiantly fought during the first three days of July, 1863. The final chapter investigates the power of both the popular press and film. “The Killer Angels” by Michael Shaara, “Gettysburg” by Ron Maxwell, and “The Civil War” by Ken Burns have all played a major role in shaping the memory of the battle. The third and final chapter critically analyzes the fact and fiction that these pieces of work have created.

#69  9:30 am

Women of the War: How Different From Each Other Were Northern and Southern Women?

Amy Stapleton-Ohton, History
Edward Blum, History

In the study of the American Civil War the exploitation of differences between the North and South in terms of economy, social structure, and politics often suggest two different cultures. My research continues to explore the differences between women living on both sides of this conflict. By reviewing ten journals of American women, five Northern and five Southern, I am attempting to gain a better understanding of their experiences and reactions to the war on a national and personal level. My analysis focuses on how the war affected the following: their roles as mothers and wives, how it transformed their work and leisure time, and the challenges to their faith in God and country. Upon review of these journals it is not difference that defines the two groups, but their similarities. Both groups prayed to the same Christian God for the salvation of family, preservation of country, and personal strength to maintain their courage and family in the absence of their husbands. Both groups provided for their families needs, all of them utilizing new skills, or entrepreneurial endeavors to survive the financial strain of war. In addition, they struggled with familial discord, relocation, and the exigencies of a destructive war. This research is not focused on women’s memories of the Civil War, rather how women interpreted and responded to the war at that moment. Thus, it excludes memoirs and reminiscences. There is no attempt to compare all American women nor conclude that this research and analysis...
Paula De Vos, History
1565-1600
Early Sino-Spanish Relations in the Philippines
My presentation will provide examples from these diaries, illustrating the remarkable sameness between women of the United States and the Confederate States of America.

William Acree, Spanish & Portuguese
Pamela Moses, Spanish
Juan Carlos Moraga Vidal, Spanish
Erasmism in America
The present essay establishes ideological connections between Alvar Nuñez Cabeza de Vacas Naufragios and the Spanish Erasmism of the XVI century. My work explores specific aspects of Erasmus of Rotterdams ideology that were spread by the Valdés brothers in the Iberian Peninsula and later transferred to the New World by the explorers and conquerors. The essay suggests a review of the work of Alvar Nuñez Cabeza de Vacas from the Humanist-Erasmist viewpoint that was very prolific in the academic circles of the Carlos Vs Period. With regard to the literary and formal elements, I analyze Naufragios within the frame of the Byzantine novel of adventures. This literary genre enjoyed absolute indulgence by the Alvar Nuñez contemporary Erasmists. Thus, the fundamental goal of this essay is to demonstrate that the work published by Cabeza de Vacas would have been to the liking of his Erasmist contemporaries for two essential reasons: his ideological content and his stylistic proposal framed within the genre “libro de naufragios”.

Shauna Geraghty, Psychology
A Diffusion Tensor Imaging Study
Tracts after Early Unilateral Brain Injury: Investigating the Development of the Corticospinal Tracts after Early Unilateral Brain Injury: A Diffusion Tensor Imaging Study
The purpose of this study is to investigate the effects of prenatal unilateral brain injury on the ongoing development of a major white matter pathway, the corticospinal tract (CST). The CST is a collection of communicating axonal fibers that interconnect the cerebral cortex and the body to transmit somatosensory and motor information. A new magnetic resonance imaging technique, diffusion tensor imaging (DTI), will be used to investigate the coherence of the CST in the injured and intact hemispheres. DTI detects the movement of water molecules, which diffuse more readily along the length of a fiber tract than across it. Measurement of the degree of directionality of water movement (anisotropy) can reveal the location and integrity of fiber tracts. High values of anisotropy indicate coherence in a fiber tract; whereas low values reflect damaged or disordered fiber tracts. Previous studies of children with early injury have shown a decrease in
Danielle Salomonczyk, Psychology
Preclinical Huntington’s Disease
Sensory Organization and Postural Control in
Bob McGivern, Psychology
Brian R. Adams, Psychology
Task
Cognitive Sex Differences in Trajectory Prediction

Evidence from human and animal studies suggest that the frontal cortex plays an important role in processing temporal order information. Individuals who carry the genetic mutation that causes Huntington’s disease (HD) but do not yet meet criteria for a clinical diagnosis of this disorder are referred to as preclinical HD (pre-HD). Frontal-striatal circuits are disrupted in pre-HD, suggesting that temporal order memory may be sensitive to neuropathological changes in this group. The current study examined...
the effects of temporal interference on temporal order memory in pre-HD (n = 18) and normal controls (n = 18). Pre-HD participants were separated into two groups: pre-HD less than 5 years away from estimated age of clinical diagnosis (pre-HD near) and pre-HD more than 5 years away from estimated age of clinical diagnosis (pre-HD far). Participants were administered a visuospatial temporal order memory task on a computerized radial 8-arm maze. On the study phase of each trial, a circle appeared individually at the end of each of the eight arms in a random sequence. On the choice phase, the participant was presented with a circle at the end of two of the study phase arms and was asked to choose the circle that occurred earliest in the sequence. Temporal interference was measured by varying the temporal separation lag, or the number of circles that occurred in the sample phase sequence between the two circles presented in the choice phase. Research suggests that there is more interference for temporally proximal stimuli than temporally distant stimuli. There were no significant differences between the pre-HD far group and normal controls on the temporal order memory task. However, the pre-HD near group demonstrated significant impairments relative to the other groups on more proximal temporal separation lags in which temporal interference was increased, but were normal on the most distal temporal separation lag in which temporal interference was minimal. The results suggest that the present temporal order memory task may be sensitive to neuropathological dysfunction in pre-HD up to 5 years prior to estimated diagnosis of HD. Furthermore, temporal order memory could serve as a cognitive marker of preclinical disease progression in HD.

Session A-5
Oral Presentation: Ethics and Consciousness
Friday, February 27, 8:45 am – 10:15 am
Location: Council Chambers

#76 8:45 am
Hidden Commonality: a Comparison of Buddhist Consciousness and the Gospel of Thomas
Matt Jakstis, Philosophy
Steve Barbone, Philosophy

Buddhism is one of the fastest growing religions in the west, yet Christianity remains most dominant in population size and influence. Given a manifold of cultural and historical disjunction, how will these two titans of spirituality be able to relate to one another in the pluralistic future as they interact with increasing mutual proximity? In what follows, a careful examination will be made of what is elemental to each group, resulting in the revelation that the Buddhist objective of apex consciousness and the Christian objective of unity with God both lead their practitioners to a startlingly similar destination the understanding that 1) proper personal development and 2) perceptual awareness are the bedrock of human fulfillment. Also, the Buddhist account of Karma is shown to have striking similarity to Christian morality, namely in its reliance on causal connections and their ability to unconsciously affect an individuals mind and actions at a future point. In reaching these conclusions, special attention is given to the Gnostic gospel of Thomas (Christian) and specific saying of Jesus within it, as well as various historical Buddhist texts such as the Dhammapada. Potential benefits from this project rest in an increased mutual understanding between adherents of various religions, specifically emphasizing their connection through similarity and, consequentially, a reduction in interfaith conflict. The gravity of this potential should not be lost. As evidenced by increasingly hostile events of religious expression in all parts of the globe, any action such as this to decrease hostility and dissonance is to the advantage of not only faithful adherents but rather all members of humanity.

#77 9:00 am
All the Snow on the Mountain
Stephen Roberts, Philosophy
Steve Barbone, Philosophy

The differences between the ethical frameworks of the eastern and western cultures seem to be far and wide. Yet, when the foundational principles that have come to define such frameworks are compared closely, the differences seem to fade. Thus it is the purpose of this paper to highlight how a western theorist, grounded in the concepts of Immanuel Kant, would interact and debate one who is grounded in the theories of Confucius. By doing this, it will be shown that the problems encountered when eastern and western moral philosophies may be adverted by the use of self-reflection and careful inspection of that which comprises each respective theory. The hopeful prospect of this project is to show that the ideas of east and west may be reconciled through these means. This paper will use the technique of dialogue, which pits each theory against the other in the context of a trail. This technique will showcase the various sides of each theory and ultimately show that there is very little that separates both moral philosophies.
#80  8:45 am

**Phylogeography of the Ornate Tree Lizard**  
_Urosaurus ornatus: A Multilocus Approach_  
Anny Peralta, Biology  
Tod Reeder, Biology

The Ornate Tree Lizard (*Urosaurus ornatus*) is a widespread and abundant species throughout the southwestern United States and northwestern México. Like many widespread species it occupies a variety of habitats and environments and exhibits extensive morphological variation. The goal of the study is a molecular phylogeographic analysis of *Urosaurus ornatus* across its distribution, with focus on elucidating patterns of lineage diversification and defining species limits using a multilocus approach (mtDNA and two unlinked nuclear genes). Preliminary Bayesian analyses recover two major lineages. A widespread lineage ranging throughout the southwestern U.S. and northern México, with geographically associated subclades. And a more geographic restricted clade located at the northern portion of the Sierra Madre Occidental which contains populations from north-eastern Sonora, México northward into Arizona and New Mexico. The structure found within *U. ornatus* populations indicates the presence of possible cryptic species. Population structure and geographic distribution within each lineage will help determinate the process affecting their diversification. Further analysis on these uncovered lineages will contribute to the knowledge about historical biogeographic patterns and processes affecting species in southwest U.S. and northern México.

#81  9:00 am

**Evolutionary History of Suction Feeding in Cetaceans: a Phylogenetic Approach**  
Cassie Johnston, Biology  
Annalisa Berta, Biology

Prior research on suction feeding in cetaceans, particularly odontocetes (toothed whales), has provided anatomical comparisons of the hyolingual apparatus. The hyoid bone is the major player as its musculature generates rapid, piston-like retraction and depression of the hyoid and tongue, creating negative intraoral pressure. Within odontocetes there are true suction feeders, using suction to capture and swallow prey, while others use suction to a lesser degree for transporting the prey for swallowing once
in the oral cavity. In well studied suction feeders (e.g. Globicephala), various characteristics of the hyolingual apparatus have been attributed to creating suction (i.e. large basihyal-thyrohyal ventral surface area, ventral throat grooves, and robust hyolingual musculature). In addition to odontocetes, a mysticete (baleen whale), the gray whale (Eschrichtius robustus), is a benthic suction feeder. However, the method of suction feeding employed may differ as the gray whale feeds by rolling on one side, sucking in prey, sediment, etc., and filtering those items through the baleen, trapping the prey inside the mouth. This is the first study to investigate the anatomical features used in generating suction in the gray whale. Previous studies have taken a quantitative approach in making comparisons among suction and non-suction feeders, and very few employ an evolutionary approach (none using any phylogenetic methods). This study uses quantitative data, in addition to typical qualitative characteristics, from 35 extant and 14 extinct species to compare anatomical structures involved in suction feeding in the gray whale to those in odontocetes. Multivariate principal component analysis (PCA) was conducted to determine if groups of characters distinguish species with different feeding strategies. Phylogenetic analyses ancestral character state reconstruction, independent contrasts (quantitative characters and PCA factors) and concentrated changes (discrete characters) were calculated to determine which characters or PCA factors are correlated with suction feeding. These analyses concluded that some commonly attributed features (i.e. ventral throat grooves and mandibular bluntness) and one of the PCA factors are significantly correlated with suction feeding; however, other common features (i.e. basihyal-thyrohyal ventral surface area) were not found to be significantly correlated with suction feeding. These findings indicate that phylogenetic relatedness is an important factor that needs to be considered when studying cetacean suction feeding and its attributed anatomical features.

**Species Limits in Elgaria Multicarinata: Testing Mitochondrial Clades with Multilocus Nuclear Data**

Angela Marion, Biology
Tod Reeder, Biology

Nuclear DNA sequences (nDNA) are a rich source of data for use in molecular systematics and are particularly useful for testing species limits. Unlike mitochondrial sequence data (mtDNA), which has a higher mutation rate, undergoes matrilineal transmission, and is a single locus susceptible to stochastic/incomplete lineage sorting, nDNA sequences can be used in multilocus analyses with a coalescent approach. Coalescent theory takes into account the stochastic nature of lineage sorting, and models relationships among alleles by tracing all extant haplotypes back to a single common ancestor. In systems with deeply divergent mtDNA lineages, multiple nDNA loci can be used to explore species boundaries and test the validity of those mtDNA clades by testing for monophyly among diverse genes is each independent gene monophyletic with regard to the mtDNA clades, or do the genes reveal inconsistent sorting? In systems with deep mtDNA divergence among samples but close geographic proximity, the results of these multilocus nDNA analyses can be particularly revealing. If the nDNA signal echoes that of the mtDNA (i.e., identical clades found across all loci), then the question should be asked if true lineage divergence speciation is taking place. While this question is being addressed across a diversity of animal systems, the local Alligator lizard (E. multicarinata) is an excellent and local test subject. Previous work by other workers has revealed a deep mtDNA split between a northern and a southern clade. Our work will involve the sequencing of multiple nuclear loci to determine if the genes sort to monophyly and if we recover the mtDNA clades. We have acquired tissue samples from E. multicarinata specimens throughout its range, from northern California to northern Baja California, and have sequenced as many as three genes for each sample. Our preliminary results indicate that, while there is some geographic concordance, the nuclear signal does not reflect that from the mtDNA. There is no sorting into monophyletic groups there are no northern and southern nDNA clades and the deep divergence in the mitochondrial DNA is not reflected in the nuclear genes. This suggests that complete lineage divergence has not taken place, and that the clades do not represent independent species. Further work will involve amplification and sequencing of two more nuclear genes.

#83 9:30 am

**The Regeneration of Pine at Cuyamaca Rancho State Park Five Years after the Cedar Fire**

Erin Bergman, Biology
Janet Franklin, Biology

An increase in forest fire frequency in the Western US has stirred awareness and concern in recent decades. Fire suppression, climate change, and other human impacts have altered forest fire regimes leading to high severity fires in some regions. Southern California is a region of high environmental and biological diversity. The conifer forest occurring on isolated mountaintops represent unique habitats in this region. This research examined the patterns of establishment of several species of pine following a high severity fire (Cedar Fire) in the Peninsular Ranges of southern California. The Cedar Fire occurred in 2003 and burned through Cuyamaca Rancho State Park (CRSP) located in San Diego County, California. This research is part of a continuing study of successional patterns in CRSP after the Cedar Fire. This study emphasizes pine establishment because previous research post fire raised concern about the mortality of 98% of the adult pines, and the lack of observed pine regeneration in 2004 and
2005. The purpose of this study was to provide CRSP managers with information on the location of pine establishment along with the environmental factors that relate to establishment in CRSP. This knowledge would help managers in restoration efforts. Our study documented pine juveniles in over one third of the quadrats in CRSP (10,520 ha state park). Approximately fifty percent of the quadrats on the west side contained juveniles whereas only 5 percent of the east side contained juveniles. Overall the study documented 6933 juvenile pines in 100 m x 20 m quadrats. Regeneration was mainly occurring on the western side of the park where P. coulteri was most abundant. Regeneration of P. jeffreyi was observed in CRSP but at very low rates. P. lambertiana regeneration occurred at high elevation in small patches. Pinus jeffreyi and P. lambertiana were not found in numbers significant to analyze statistically. Significant factors associated with the regeneration of P. coulteri included a high cover of substrate (bare ground) and high cover of adult pine, along with the presence of Holland sandy loam soils. Ceanothus palmeri cover was negatively associated with P. coulteri juveniles. P. coulteri was growing in forested areas that had burned at higher severity. The abundance of P. coulteri was positively related to elevation, percent cover of adult pine, and substrate cover. Regeneration of P. jeffreyi, P. lambertiana, and P. ponderosa is lacking in severely burned forest but P. coulteri having open and release seeds in response to fire can establish in severely burned forest. Overall regeneration of pine is occurring in CRSP but it is limited, and consists of mainly P. coulteri concentrated on the west side, at high elevation, on bare substrate (pines are shade intolerant), and in areas formerly dominated by P. coulteri forest. It is encouraging to see forth year juveniles and even though regeneration is lacking on the east side, at least the fire was less severe in that region where P. jeffreyi was most abundant. This information will help forest management in future restoration activities.

#84  9:45 am
**Human Activity on Coral Reefs Encourages Pathogenic Vibrio Species**

Robert Schmieder, Computer Science
Robert Edwards, Computer Science

The world wide decline of coral reefs is coupled with an increase in coral disease which suggests microbes are involved. To understand the baseline microbial load on corals, the prevalence of Vibrio spp. was measured across a chain of islands in the central pacific, called the Northern Line Islands. This island chain has a range of human activity, from near pristine to high levels of activity. The initial microbiological survey of the Northern Line Islands showed that most cultured Vibrio species were found on Kiritimati (high levels of human activity), fewer on Tabuaeran and Palmyra, and least on Kingman (near pristine). In contrast, a culture-independent survey by metagenomics random sequencing of environmental DNA from these islands showed relatively consistent numbers of Vibrio spp. at each island. To explain these apparently contradictory results, we used a multi-locus sequencing approach (MLSA) to analyze the water samples at each island and identify the exact species present at each site. The MLSA analysis demonstrated that there is a consistent background of Vibrio spp. present everywhere and detectable by metagenomics, and additional species present at the specific locations where Vibrios were readily cultured. Within the Vibrio strains identified across the islands there were more pathogenic strains present on Kiritimati where the ecosystem had undergone some perturbation. Only one species of Vibrio (V. harveyi) was found on Kiritimati closest to the high levels of human activity, suggesting that human activity, in particular fishing, reduced the diversity of the Vibrio populations and encouraged the growth of potentially pathogenic strains. The prevalence of coral disease was highest on reefs near human activity and the changes of the microbial communities may be a leading cause of coral decline.

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**Session A-7**

**Oral Presentation:**

**Political Philosophy and Literary Criticism**

Friday, February 27, 8:45 am – 10:15 am

**Location:** Quetzalcoatl A

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**#85  8:45 am**

**Principles of Just Humanitarian Intervention**

Timothy Sparks, Philosophy
J. Angelo Corlett, Philosophy

The purpose of my presentation is to provide a critique of J. Angelo Corlett’s conditions for a state to be justified in engaging in humanitarian intervention as provided in chapter seven of Justice and Rights. Corlett uses the United States intervention in Colombia as his example, but I will use as my example the situation in Germany during World War II prior to the United States military intervention in that war. Although the United States participation in World War II was far from morally perfect, I take our involvement in that war to be more just than our involvement in any other war in our history. I will argue that several of Corlett’s conditions for a state to be justified in engaging in humanitarian intervention would preclude the United States involvement in World War II prior to the attack on Pearl Harbor. As such, his conditions are too strict. I will further provide a different account of the conditions for just national humanitarian intervention using commonly accepted conditions for intervention on behalf of individuals by other individuals. First, the cause must be just. Second, the party
the United States intervenes against must be responsible. Third, the action must be proportional. Elaborating further on the third condition, the action must be proportional in three ways. First, the intervention must fit the crime. For instance, the United States should not invade a country and destroy its infrastructure simply because it failed to pay its debts to the IMF. In this case, the intervention would be too strict for the injustice. On the other hand, it is possible for an intervention to be too lenient for the injustice. Second, the intervention must provide a significant moral benefit to the oppressed in proportion to the moral detriment the United States is seeking to alleviate. Finally, as the severity of the injustice and the severity of the intervention increases, the important, but not necessary, conditions that Corlett proposes become less and less essential. As the severity decreases, these conditions are more essential.

#86 9:00 am
*The Problems and Political Context of John Dewey’s Pragmatic Method*
Matthew Morley, Political Science
Emanuele Saccarelli, Political Science

The purpose of this project is to address the political applicability of John Dewey’s pragmatic method in a manner that speaks to both his writings on its own terms, as well as to the social context in which they were developed. Of all the philosophers to be associated with the development of pragmatism, Dewey’s contributions have been the most prolific, lasting, and they seek, much more than any other pragmatist, to address the public mind. Yet throughout his political writings there are peculiar discursive threads that, it is argued in my thesis, serve to obfuscate specific personal culpability and political agency. At the same time, it is these same discursive threads that serve to bolster an alternative framework from which Dewey’s pragmatic political conclusions emerge. Thus, obfuscating both the diagnosis and the solutions carried forth within his political thought. It is argued that the problems associated with Dewey’s pragmatic method of analysis cannot be properly addressed or understood unless they are placed in the historical and political context from which they emerged. Thus, my project consists of four parts. First, I outline my argument and briefly discuss the significance of pragmatism as a form of political philosophy. I also discuss the significance of Dewey’s specific contributions, both historically and in current strands of political thought. The second part addresses the interpretive methods that I am relying on for this study. Specifically, it is argued that the historicist method of Joseph Femia, as well as loosely-related methods espoused by Richard Ashcraft, Hannah Arendt, and C.B. MacPherson, are the most useful when approaching a subject as complicated as Dewey. The third section is two-fold: I specifically address the textual concerns of two of Dewey’s most direct political writings, and then place them in a broader historical context. Lastly, I conclude that the textual concerns in Dewey’s political thought cannot be understood without placing them in the broader historical context and Dewey’s own political development. It is argued that the aforementioned problems of Dewey’s pragmatic method point to larger issues, most prominently a lack of political agency within the philosophy itself.

#87 9:15 am
*Defending Rawls Against Habermas*
Mark Norzagaray, Philosophy
J. Angelo Corlett, Philosophy

In “Between Naturalism & Religion”, Jürgen Habermas criticizes John Rawls’ political liberalism for the expectations it places upon citizens, specifically those of tolerance of non-liberal societies and the use of public reason in public deliberation. Habermas charges that the expectation of tolerance contradicts another civic obligation: the duty of assistance to burdened societies. Habermas also contends that the expected use of public reason unfairly and unrealistically burden religious citizens. However, Rawls political liberalism can be successfully defended against these objections. In my paper, I describe Rawls’ political liberalism, as described in “The Law of Peoples”, and defend it against these objections by Habermas.

#88 9:30 am
*All Paths Lead Back Home: Dialectical Issues in English Composition*
Aaron Little, Rhetoric and Writing
Richard Boyd, Rhetoric and Writing

Language is a tool of expression that carries millennia of meaning throughout the continuum of the human experience. It is by this tool that civilizations rose from austerity, conquered inhospitable environs, and built modern civilizations founded firmly upon human knowledge. Gregory Shafer, a Community College writing teacher, notes that language is as dynamic and evanescent as the people for whom we write a performance for a real audience with feelings and culture and values (Shafer, 71). The rigid commitment to scholarly excellence, conceived in the ancient academic halls of the university, provided the bulwark by which modern societies continue to advance. Recent growth in University populations of students from diverse ethnic backgrounds offers new challenges to traditional English composition pedagogy. Many educators contend that a rigid commitment to traditional academic guidelines obstructs the learning process of potentially gifted nonstandard English speakers (Fay, Baxter & Holland, and TuSmith). Teaching practices which hinder learning processes of dialectically different English composition students should be reformulated to maximize the performance of English composition students, regardless of their dialectal challenges.
This research project shall explore the dialectical exigency involving High School and College writing students and teachers. Academic scholarship is not merely a function of human curiosity; members of society benefit from college education by becoming active participants in career areas of their choice. Examining the greater social ramifications of a nonstandard English speaking student population, this research project shall explore University culture operating within a diverse society and review fundamental pedagogical impasses. Finally, proposed solutions to problems involving nonstandard English students shall be reviewed within the following areas: reforming writing pedagogy, creating ancillary solutions, and expanding a culturally inclusive curriculum. Writing is not merely a tool by which members of the human community delineate valued knowledge, for writing can be used, crafted, and composed; it is a mode of agency; deliberately paying attention to the world in writing is inherently a way to interrogate self and language (Harris, 416). Writers exult the highest virtues of western scholarly tradition, for students who become adept in academic writing discourse communities may use their skills to critically investigate the continuum of human knowledge.

#89 9:45 am

**Funny Paper**

Lisa Hemminger, English
Sandra Alcosser, English

As difficult as expressing humor on a lighted stage is, being a poet who can effectively zing comedy on paper is an even rarer skill. Add to that the difficult challenge of a global world where people seem more drawn to worry and aggression than to carefree living and the number of poets skillfully evoking deep laughter dwindles even more. Following the echo of the fundamental English language satirists like Shakespeare, Spenser, and Pope, and the more recent postmodern footsteps of wry poets like Billy Collins, Kenneth Koch, and Kay Ryan, is another, younger band of poets fighting with humor against the chaotic shove of their post-postmodern world. Dean Young, Jennifer Michael Hecht, and Josh Beckman are three relative newcomers in this group. Against digital age competition, these poets work without the benefit of seeing their comedic vision realized on a stage or a screen; they deliver their humor exclusively to the most unpredictable stage of all: the mind of every reader. They are painting genuine poetic hilarity for an intellectual public on the brink of a century with more realized prospects and defects than ever before. Reading this trios poetry, one can see both loyalty to the English poetic tradition and an address to issues of the present world. Inspired and observant, comedic and reverent, their pointed points of view will provide for future readers a camera into a time when too many individuals are spending too much time doing too many things other than laughing. Funny Paper is a humble project; for it, there were no surveys, no quantitative studies, and no deep research. It relates just the reach and search of a single poet who appreciated humor, who flipped through a couple of books of the times, and laughed when certain poetry was in hand. Anyone interested in their art can look to their words and heal, now and hopefully then.

#90 10:00 am

**Isolation and the Short Stories of Raymond Carver**

Toby Hopp, Journalism and Media Studies

Critically and culturally renowned for his ability to use dialogue to capture the pain and poetry of daily life, Raymond Carver’s prose is often seen in lambency not unlike the works of Edward Hopper or Norman Rockwell. It is, however, a misconception that Carver attained his truth, the hard-headed genuineness that encompasses his work, wholly through the overtly conspicuous mechanics of rhetorical composition or intra-character dialogue. With Carver, the outside world always existed, burgeoning and crashing on the beaches of cognizance, but the way that world was perceived by his protagonists was almost always constructed, at least partially, within the framework of applied isolation. As such, the proposed study possesses three main goals. First, the study will contextualize Carver’s work as cumulative body by examining the arc, trajectory, and paradigmatic architecture of his prose. Second, the study will define and operationalize Carver’s use of isolation within his short stories. Third, and finally, the study will qualitatively assess the role, function, and prevalence of Carver’s use of isolation within his body of work using targeted examples from all phases of his literary career. The study will result in a scholarly paper which will synthesize qualitative findings with primary and academic sources.

Session A-8

**Oral Presentation: Culture and Society**

Friday, February 27, 10:45 am – 12:30 pm

Location: Backdoor

#91 10:45 am

**Effectiveness of Ethics-based Sexual Harassment Awareness Training**

Heather Yamashita, Psychology
Lisa Kath, Psychology

The present study evaluated two sexual harassment awareness training programs designed specifically to evaluate the differences between the following approaches: sexual harassment solely as a legal issue, and one that approaches sexual harassment as an ethical and legal issue. It is hypothesized that a program that integrates both an ethical and legal perspective will be more effective.
effective in preventing and correcting harassment than a legal only based program. 151 undergraduate psychology and business students completed either ethical or legal computer-based training as well as a post-training survey; in addition half also completed a pre-test, to create a Solomon four-group design. Varieties of training outcomes were assessed; measures of cognitive outcomes; knowledge about sexual harassment law and knowledge about organizational policies. Measures of affective outcomes included: cynicism about sexual harassment awareness training, sexual harassment myth endorsement, harassment importance, bystander intervention norms, bystander intervention self-efficacy, harassment reporting self-efficacy, and training satisfaction. Results indicate those who received both the pre- and post-test show significant increases in knowledge about sexual harassment law and organizational policies about sexual harassment along with an overall significant decrease in cynicism about sexual harassment training and in sexual harassment myth endorsement. In addition, there was a corresponding increase in sexual harassment importance, bystander intervention norms, bystander intervention self-efficacy, and harassment reporting self-efficacy. Analyzing the differences between post-test outcomes for legal-based and ethical-based training indicated ethical-based training provided statistically equivalent mean scores for knowledge about sexual harassment law, myth endorsement, bystander intervention self-efficacy, harassment reporting self-efficacy, and training satisfaction. Ethical-based training was associated with significantly lower cynicism and higher sexual harassment importance, depending on the testing condition. Ethical-based training also led to significantly higher means for bystander intervention norms, regardless of testing condition. The analysis suggests that ethical-based training may be equal to or more effective than a legal-based training. This is the first step toward a theoretically-based approach to improved design of sexual harassment awareness training, which in turn will help reduce the incidence of sexual harassment within organizations.

#92 11:00 am

**Relationship Among Nursing Workforce Factors and Nurse Caring**  
Paige Lee Burtson, Nursing  
Jaynelle F. Stichler, Nursing

The purpose of this correlational study was to investigate the relationship among variables in the nursing work environment and the outcome of nurse caring. A conceptual model was proposed that matched five variables of interest (compassion satisfaction, nurse job satisfaction, work-related stress, burnout, and compassion fatigue) to motivational needs outlined in the theoretical work of Abraham Maslow. It was hypothesized that there would be two positive correlations (compassion satisfaction, nurse job satisfaction) and three negative correlations (work-related stress, burnout, compassion fatigue) with the outcome variable of nurse caring. Hypotheses were tested using a convenience sample of nurses (n = 126) at a single, academic medical center who worked in three nursing divisions (medical-surgical, critical care, emergency). Data was collected by a survey method with a demographic questionnaire and six, distinct instruments with known psychometric properties to operationalize the five independent variables and the dependent variable of nurse caring. Correlational analyses showed that: (1) compassion satisfaction was positively correlated with nurse caring (r = .51, p < .001), (2) nurse job satisfaction (satisfaction with coworkers, interaction opportunities, praise and recognition) was positively correlated with nurse caring (r = .46, .28, .19, p < .05), (3) work-related stress was negatively correlated with nurse caring (r = -.21, p < .05), (4) burnout was negatively correlated with nurse caring (r = -.25, p < .01), and (5) compassion fatigue was negatively correlated to the knowledge and skill subscale of nurse caring (r = -.22, p < .01). Post hoc analysis demonstrated that compassion satisfaction alone predicted 29% of the variability in nurse caring (R² = .287, p < .001). In summary, a new research finding emerged from this study demonstrating that compassion satisfaction is both correlated with and predictive of nurse caring. Nurses who were able to find profound meaning in their caregiving role were more likely to demonstrate caring behaviors with patients. This finding suggests that the key to increasing patient satisfaction scores may be to create opportunities for nurses to share meaningful stories of caring that help them reconnect to their vocational calling that initially drew them to the profession of nursing.

#93 11:15 am

**Public but Opaque: The Problem of Tracking Homicide Charging in a California County**  
Larissa Tabin, Criminal Justice Administration  
Paul Kaplan, Criminal Justice and Criminology

This paper reports on a project to collect and analyze publicly available demographic data related to not yet adjudicated (live) homicide cases charged in one large and diverse California County. Much of the desired data, although legally publicly available, turned out to be impossible or practically impossible to obtain. This situation means that the legal concept of public record is something of a fiction, a form of repressive formalism where the law on the books says that government documents are available for public scrutiny but the law in action says they are often not available or are prohibitively difficult to obtain. In this paper, we begin by discussing the importance of the race effect in relation to prosecutorial decision-making on homicide cases, we next explain in detail our data collection efforts for live homicide cases.
Tom Huxford, Biochemistry
Mark Villaluz, Chemistry

Kinetics and Inhibition of Sphingomyelinases

by first focusing on the problems we encountered in attempting to collect official documents and then reporting on what we were able to obtain and the data therein; finally, we propose policy recommendations to remedy the problem of opacity of prosecutor decision-making on potentially capital cases.

#94 11:30 am

Jail Pedagogy: Teaching Prisoners

Jerry Flores, Sociology
Kyra Greene, Sociology

In recent years the United States has been reported to have the largest population of prisoners in the world. Along with this massive imprisoned populace comes the need to rehabilitate and educate these peoples. Much has been published regarding teaching in prison, but few publications have addressed directly how prisoners are being taught. This research paper discusses teaching techniques used in detention facilities, the experiences of those teaching in these settings, and, the educational content of what is being taught to imprisoned students. In order to gain a comprehensive look into what is taking place within these classrooms, I have interviewed teachers that are currently working in detention facilities in and around San Diego, California. Through semi-structured qualitative interviews and participant observations, I took an in-depth look into teaching techniques used in jails and prisons, while also discussing the experiences of instructors that work in these unorthodox settings.

Session A-9
Oral Presentation: Protein Structure and Function
Friday, February 27, 10:45 am – 12:30 pm
Location: Calmecac

#95 10:45 am

Kinetics and Inhibition of Sphingomyelinases

Mark Villaluz, Chemistry
Tom Huxford, Biochemistry

The sphingomyelinase catalyzed hydrolysis reactions produce two noteworthy molecules: sphingosine-1-phosphate (S1P) and ceramide. Ceramide helps initiate the apoptic pathway while S1P is a second messenger in cell proliferation and survival. S1P has consequently garnered attention as a possible cancer target. Heart attacks and strokes are the number one and three killers in the United States, respectively. Although the pathway is not completely understood, ceramide and Neutral Sphingomyelinase or nSMase (a mammalian SMase) may play a key role post-MI or CVA. If SMase can be inhibited once blood flow is reestablished, this may reduce damage of an ischemic event, leading to an improved prognosis. Although SMase inhibitors have been identified, their biological activities are not sufficient to be effective drugs. Secondly, a recent study has proven that dephosphorylation of sphingomyelin can lead to inhibition of chloride ion channels. Without adequate chloride ion channel function, fluid movement decreases and a build up of mucus in the lungs occurs. Therefore, sphingomyelinase may be one of the key players in the pathogenesis of cystic fibrosis. SMase C from B. cereus and SMase D from L. arizonica were expressed and purified in milligram amounts from E. coli bacteria. Using carbon-14 labeled sphingomyelin and phosphorous NMR we are performing kinetics experiments on SMase C and D. We have plans to test quinone-based inhibitors against SMase C and D activities in vitro. From this study, we can create a model through which we can hypothesize what functional groups should be included in inhibitors of nSMase. A sphingomyelin bound protein crystal can guide us into creating more specific inhibitors. We would be able to see which functional groups of sphingomyelin are critical in substrate binding and use it to adjust our plans for synthesis. As we continue to test compounds, we will hopefully build a library of inhibitors that we can take to the next step of drug discovery by testing against mammalian nSMase.

#96 11:00 am

Structural Studies of IKKbeta Complexed with IkappaBalpha/p50/65

Arthur Hauenstein, Chemistry
Tom Huxford, Chemistry and Biochemistry

NF-kappaB is a ubiquitous transcription factor first discovered in 1986 by Sen and Baltimore as a protein that binds the kappaB promoter DNA for kappa light chain in B-lymphocytes. Induced by a variety of viral, bacterial, and inflammatory signals, NF-kappaB is responsible for the activation of a number of genes involved in the inflammatory response, cell development, and anti-apoptotic processes (cell survival). The beta subunit of the upstream regulator of NF-kappaB activation, IKK, phosphorylates the inhibitor of NF-kappaB, IkappaBalpha, specifically at residues Ser32 and Ser36. This phosphorylation event leads to the ubiquination and degradation of IkappaBalpha by Ò-TrCP ubiquitin ligase and the 26S proteasome, respectively, allowing for the translocation of NF-kappaB to the nucleus. It is currently unknown how IKKbeta recognizes IkappaBalpha for this phosphorylation event. In vitro kinase assays conducted in our lab have revealed that C-terminally truncated IKKbeta constructs lose their ability to phosphorylate series -32 and -36 and phosphorylate the C-terminus of IkappaBalpha instead. We propose that the C-terminus somehow blocks the phosphorylation of the c-terminal PEST region of IkappaBalpha and/or presents the N-terminus of IkappaBalpha to the active site. To test this hypothesis, we have three specific aims: 1) To express, purify, and biochemically...
characterize IKKbeta/IkappaAlpha/p50/p65 complexes. 2) To crystallize these complexes for structural determination by x-ray crystallography. 3) To design structure-based inhibitors of IKKbeta and conduct in vitro kinase assays along with kinetic studies to test our inhibitors’ ability to block its activity. We are currently able to express and purify milligram amounts of IkappaBalpha and p50/p65 complexes in E. coli (IkappaBalpha is purified in complex with the NF-kappaB heterodimer, p50/p65, because it is stable and this is how it is presented to IKKbeta in the cell) and milligram amounts of IKKbeta in Sf9 insect cells using a baculovirus expression system. We plan to combine these purified components in 1:1 stoichiometric ratios to form the NF-kappaB signalsome. We plan to use approaches that have proven successful in stabilizing other kinase/substrate structures including the use of the non-hydrolyzable ATP analog, AMPPNP, synthesizing ATP-linked substrates by expressed protein ligation, and the use of short peptide-like N-terminal constructs of IkappaBalpha that encompass residues 32 and 36. Upon formation and purification of a stable IKKbeta/IkappaBalpha complex we plan to concentrate it and start crystallization studies. Any observed crystals would be optimized for x-ray diffraction studies on our own in-house instrument. The determination of the crystal structure of an IKKbeta/IkappaAlpha complex would compliment our biochemical studies of IKKbeta; providing a framework for a proposed mechanism for its specificity towards IkappaBalpha and suggest logical strategies for selectively blocking this activity.

#97 11:15 am

**Novel Inhibition of ITK Activity and Th2-cell Function**

David Guimond, Biology
Constantine Tsoukas, Biology

The inducible T-cell kinase (ITK) is necessary for T-helper 2 (Th2) lymphocyte development and effector function. Following T-cell receptor (TCR)-mediated activation, ITK is recruited to the SH2-domain containing leukocyte adaptor protein (SLP-76). Upon recruitment to a SLP-76 nucleated signaling complex, ITK becomes fully activated and phosphorylates downstream targets required for T-cell activation. Based on the known protein domain interaction between ITK and SLP-76, we have designed a modified peptide inhibitor (R9-QQP) capable of disrupting this interaction and thereby preventing T-cell activation. We are currently applying this novel technology to an experimental model of bronchial asthma as a possible therapeutic.

#98 11:30 am

**Biochemical Studies on IkappaBzeta as a Novel Transcriptional Regulator of NF-kappaB**

Norman Zhu, Chemistry
Tom Huxford, Chemistry

IkappaBzeta is a newly discovered transcriptional cofactor with its expression shown to be up regulated by the transcription of NF-kappaB. Upon induction IkappaBzeta enters nucleus has proved to be crucial for the proper expression of pro-inflammatory cytokine interleukin-6 in mouse knock out studies. Its role as a possible transcriptional activator was further validated by our recent publication showing it forms stable ternary complex with NF-kappaB p50 homo-dimer on kappaB binding site. Interestingly IkappaBzeta does not seem to play the role of a transcriptional activator for all members of the NF-kappaB family. In our follow up studies we examined IkappaBzeta effects against p65/p50 hetero-dimer. Surprisingly, the opposite was observed in the results of our gel shift assays. Rather than forming a stable complex as it did for p50 homodimer, IkappaBzeta dislodged p65/p50 hetero-dimer off from the kappaB site. This finding was further substantiated by our Surface Plasmon Resonance results showing IkappaBzeta preferentially bind to anchored p65/p50 hetero-dimer over its free floating counterpart. In light of these new findings, it appears IkappaBzeta exhibits both qualities as an activator as well as an inhibitor. Interestingly it seems to reverse what ever the signal its binding partner was originally intended to do. Its probable IkappaBzeta behaves as a signal transduction buffer in an environment where all things are kept in a state of homeostasis.

Session A-10

Oral Presentation: Literary Analysis
Friday, February 27, 10:45 am – 12:30 pm
Location: Casa Real

#101 10:45 am

**Found Poetry: Expanding Current Conceptions of the Found Poem**

Paul Klevan, English
Maggie Jaffe, English

“It is the honorable characteristic of Poetry that its materials are to be found in every subject which can interest the human mind.” (William Wordsworth. Lyrical Ballads: “Advertisement”) Oddly enough, Wordsworth who “found” poetry in nature is describing a 20th century phenomenon: Found Poetry, original works of art created by rearranging or altering the text of another author. For example, collages are formed from whole texts, newspaper clippings, internet blogs, cereal boxes, and so forth, to create what is known as a Pure Found Poem. Pure Found Poetry is composed
entirely of outside texts to draw interesting comparisons between the original work and the modified poem. Annie Dillard notes that, “In the course of composing such found poetry the original author’s intents were usually the first to go.” However, I do not believe that that needs to be the case. Although the outpouring of Found Poetry has already been substantial and the results highly imaginative, Found Poetry has yet to fully blossom as an art form because of the currently limiting definition. A goal of Found Poetry, instead of making the original author’s text unrecognizable, is to relate the modern century to past poetry. Poets have always done this. Take, for example, Allen Ginsberg’s, “A Supermarket in California,” where he makes direct reference to Walt Whitman and to the great Spanish poet Federico Garcia Lorca. Additionally, William Blake’s “The Marriage of Heaven and Hell,” in turn, specifically references John Milton and offers a critique of Milton’s “Paradise Lost.” Similarly, the famous lines “The doors of perception” was coined by Blake and not by Aldous Huxley or Jim Morrison. My poetry, which I mostly classify as Found Poetry, seeks to keep the original author’s intention “intact… and swinging” the element of delight” (Dillard). The poems displayed in this presentation have lines found from shampoo bottles, stand-up comedy acts, television commercials, literature, poetry, and movies. Perhaps under the canopy of Found Poetry the beauty and truth hidden among the kibble of pop-culture might be connected to the art of the past.

#102 11:00 am
A Literary Analysis of Samuel Beckett’s Unnamable
Aria Fani, English
John Granger, English

Beckettian mentality is all about exploring, manipulating and living with the question, minus the answer. Bs trilogy is deeply invested in the affairs of the mind. Malloy is profoundly invested in knowing, with its high philosophical confusion. Malone Dies plays with the ordering mind when it seeks to enter and explore highly sensitive realms of the human mind, father-daughter and brother-sister relationships. The last novel of the trilogy, The Unnamable, is a profound mental journey of a character(s) through his struggles to discover character interiority, void of self and inner voice that could potentially lead him to the source of his agony. This paper explores the usage of pronouns and how they are intricately intertwined with Beckett’s characters.

#103 11:15 am
Gender Bias in Children’s Literature
Irina Chukhray, Women’s Studies
Esther Rothblum, Women’s Studies

Reviews of children’s literature in the 1970s reported highly stereotypical representations of male and female characters. Children’s books contained twice as many leading male characters as compared to leading female characters. Recent studies indicate that representations of female characters in leading roles have increased. The previous researchers focused mainly on award winning books; however, that is not necessarily a true reflection of what children read and what reading is most influential on children. In order to further understand where children get their ideas of gender identity and gender bias, the present investigation focuses on analyzing children’s favorite books from public and elementary school libraries. The circulation record of the libraries was used in order to ascertain the most popular titles. The result of the present investigation indicated a decrease in depictions of gender stereotypes in more recently published works. However, while some female characters participated in traditionally masculine activities, the present research revealed a non-existent representation of male characters participating in traditionally feminine activities. Pictures displayed characters with only same-sex friends supporting the traditional idea that boys should stick with boys and girls should stick with girls. A book even contained an illustration with feminine features depicting an image that is negative and traditionally associated with women.
Art Spiegelman’s book, *In The Shadow of No Towers*, consists of ten serialized, chaotically organized oversized comic pages. Spiegelman, an eyewitness to the attacks on the World Trade Center on September 11, 2001, drew the comic to portray his trauma after witnessing the two towers collapse. Out of the chaos emerges the main recurring image of the book: Spiegelman’s recurring hallucination which he calls the “glowing bones”, a vision of the glowing framework of the North Tower of the World Trade Center just before it collapsed. Analyzed using Cindy Caruth’s model of trauma outlined in her book *Unclaimed Experience*, Spiegelman’s repeated hallucination portrayed in is an attempt to relive and master the trauma of witnessing the World Trade Center collapse. The way its impact lessens from page to page represents Spiegelman’s progress in mastering his trauma by replaying the traumatic experience in his mind over and over again.

Robert Frost writes, “The figure a poem makes. It begins in delight and ends in wisdom.” But what if the reading of a poem doesn’t end in the appropriate insight? A handful of American poets such as Walt Whitman, Ralph Waldo Emerson, and Henry David Thoreau are quoted time and time again for all sorts of occasions, formal and informal alike. Frost, another oft quoted poet, is considered by many America’s poet, the common man’s answer for the likes of Whitman’s and Emerson’s naturalist styles. Frost’s poems are recited at ceremonies and occasions, ranging from weddings to high school graduations, and his words can even be found printed on greeting cards. Perhaps the average reader is tempted to draw on the quotability of Frost’s poems because he is considered easy to understand, especially when compared with his contemporaries who wrote in an esoteric modern style. However, the simplicity attributed to his poetry frequently results from misinterpretations that fail to account for the complexity found when his poems are examined more critically. Our research focuses on misinterpretations of Frost’s poetry that lead to the misuse of his verse, specifically when such misreadings are quoted during occasions and ceremonies. We examined databases, newspaper archives, primary sources that include personal correspondence between Frost and his
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#49 10:45 am

**Image Processing of Novel All-Polymer High Collection Efficiency Biochip for Pathogen Detection**

Namratha Tata, Mechanical Engineering
Samuel Kassegne, Mechanical Engineering

Biological imaging for isolation and concentration of pathogen or sub micron particle is an emerging field covering a wide range of applications critical to any biological and clinical research. Tests were carried out experimentally by manipulating the polystyrene beads in a high-efficiency, high-volume 3D C-MEMS fabricated biochip using Closed-cell Electrophoresis. This Electrophoresis process is captured with a CCD camera and processed 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 were developed to measure the performance of biochip for comparing the efficiencies of various ROIs in and around positively and negatively charged electrodes.

#108 11:00 am

**On Short Minimal Zero Sequences**

Ryan Moore, Mathematics and Statistics
Vadim Ponomarenko, Mathematics and Statistics

When considering the ring of integers of an algebraic number field, elements need not have unique factorization in general. The problem to characterize factorizations of these elements is of great interest, through it born the theory of non-unique factorization. A successful approach involves what is known as the block monoid of the class group of the ring. In particular, the irreducible elements of the block monoid, known as minimal zero sequences, reveal much concerning properties of non-unique factorization. The primary focus of this work is centered on investigations of minimal zero sequences of lengths 2, 3 and 4 for class groups of arbitrary rank. In the cases of length 2 and 3, driven by new methods to categorize the elements of the class group, known formulas for the number of minimal zero sequences are obtained. Most strikingly though, these same methods give way to a previously unknown formula for the number of minimal zero sequences of length 4. As little is known of minimal zero sequences of relative length, this result is a solid step in determining the number of minimal zero sequences of arbitrary length.

#106 12:00 pm

**Community of Heroes**

Ana Sanchez Anglin, English
Jeanette Shumaker, English

This essay will demonstrate that Philip Pullman’s young adult fantasy novel, *The Subtle Knife*, published in 1997, portrays a community of heroes that relate to impoverished adolescents. Pullman’s community of heroes portrays characteristics of people in poverty in a positive way. Such characteristics include ways people tell stories, community collaboration and unique styles of problem solving, according to education experts such as Ruby Payne, Sonia Nieto, and David Tyack. These elements are seen in young adult ethnic literature, however; this novel is not specific to this genre, and therefore encompasses a wider more diverse young adult audience. Because Pullman’s fantasy portrays attitudes of impoverished people in a positive light, then young readers will not only be able to enjoy an excellent novel but will also feel empowered by it. This is important because after reading *The Subtle Knife* young readers in poverty will feel part of the mainstream and not isolated.
#109 11:15 am

**Monitoring Particulate Crushing with Acoustic Emission (AE)**

Johan Gallay, Civil Engineering
Julio Valdes, Civil Engineering

This study centers on monitoring particulate crushing in constrained compression with acoustic emission (AE) measurements. The AE data is collected and analyzed to evaluate the local displacement mechanisms that lead to the apparent progression of an emergent crushing front, which propagates in the direction of loading, yet does so faster than the applied deformation rate. Preliminary studies suggest that the onset of the crushing front is related to the formation of compaction bands and their interconnectivity.

#110 11:30 am

**Waved Based Evaluation of Arching in Constrained Granular Packs.**

Vasiliki Karanikola, Civil Engineering
Julio Valdes, Civil Engineering

Arching occurs in laterally constrained loaded granular packs. Arching is described as the friction-supported force transfer from a load boundary to adjacent stiff boundaries, resulting in an increase in stress within the material closest to the stiff boundaries. This study will explore the potential of characterizing the stress distribution in a laterally constrained, vertically loaded granular pack. A wave-based evaluation method will be used to infer the stress distribution within the length of the pack.

#111 11:45 am

**Dependency of Flood Frequency Distributions on Sampling Period in the Susquehanna Basin**

Maryam Kargar, Civil Engineering
R. Edward Beighley, Civil and Environmental Engineering

Flood frequency analysis, which examines how often flood event of a specific magnitude will occur or how large a flood will be for a particular probability of exceedence or recurrence interval, has been used for determining flood risk for the management of water resources and design of hydraulic structures such as dams, bridges and irrigation channels. The technique involves using observed annual instantaneous peak discharge data to determine discharge statistics for the gauge location, such as mean, standard deviations, skewness and recurrence intervals. These statistics are then used to approximate probability distributions, such as Log-Pearson Type III and Gumbel, to the observed data. In this process, the sample size (i.e., number of annual maximum events) is usually small, less than 20, resulting in a high degree of uncertainty. This study addresses two important questions: (1) what is the minimum sample size required to adequately capture the regional flood frequency, and (2) how does the required sample size vary with period of sampling. The study area is the Susquehanna River Basin (71,000 sq km) with over 200 U.S. Geological Survey streamflow gauging locations where the periods of records vary significantly (i.e., less than 5 year to over 100 years). To estimate flood frequency, the Log Pearson Type III distribution is fit to the logarithms of instantaneous annual peak flows following Bulletin 17B guidelines of the U.S. Interagency Advisory Committee on Water Data.

#112 12:00 pm

**Development of a Best Management Practice for Reducing Nutrients and Runoff from Nurseries in Southern California**

Anna Wernet, Civil Engineering
R. Edward Beighley, Civil Engineering

As the worlds population increases, the demand for food from agricultural operations increases. To meet this increasing demand and maximize profits, growers utilize high doses of fertilizer to assure successful growth throughout the season. As a consequence, fertilizer residue is exported after each irrigation event, contributing to downstream water quality deterioration (i.e., eutrophication). The objective of this research is to develop a portable biofilter, Best Management Practice (BMP), that can be used to reduce nutrients and runoff from nurseries in southern California. Initial research has been conducted to determine the plant species and growth media that provides optimal uptake of nutrients and flow. During a 10 week study, samples were collected from 6 plant species; 3 being native plants to California. Each species was transplanted into potting blends of peat and sand (e.g., 25:75, 50:50, 75:25), where each portion is measured by volume. The plant and growth media study was performed in a greenhouse at San Diego State University. Preliminary results show that California Meadow Sedge (Carex pansa) is the best alternative for the construction of the biofilter, which will be conducted in the next phase of the research.
In recent years significant effort has been devoted to develop better analytical models to improve the high velocity impact response prediction of laminated composites. These models need to be validated before they can be used in practical applications. Model uncertainty quantification constitutes an important part of any model validation effort and is currently an active field of investigation. The focus of this work is to examine methods for quantifying model uncertainty related to composite impact response prediction. Some sources of error include mesh sensitivity, fidelity of modeling the material stiffness degradation and damage propagation, and analysis accuracy to capture the interaction between different failure modes. The contribution of this work is the identification of various sources of uncertainties and their effects on the failure response robustness and predictability of the composite problem. The first step is to identify the sources of uncertainty/error that affect the predicted response of the composite under high strain rates, such as assumptions/measurement in the model input parameters, approximations in the spatial and temporal discretization schemes (FEM), sampling methodologies such as Monte Carlo simulation and response surface methods, measurement of output quantities and the composite model itself. The current model uncertainty quantification effort requires developing sampling and non-sampling techniques for uncertainty propagation. A challenge in this problem is that the tests to evaluate constituent material properties of simple coupon level testing are relatively cheap compared to fully instrumented impact tests. Also for higher system level validation, experimental data is usually scarce or more difficult and expensive to obtain. A suitable procedure to roll up uncertainties from component level (constituent material) to system level (composite laminate) is needed. The use of Bayesian updating methods to update prediction response uncertainty as more tests become available will be investigated. Alternatively if tests from different levels are available then a Bayesian network model for composite impact problems can help identify the source of uncertainty. Such approaches are being developed for simple structural problems. The objective will be to adapt the general framework to work specifically for the composite impact response prediction problem.

Traditional Medicine involving the use of plant preparations has been practiced in Peru for centuries and there continues to be a widespread knowledge and use of plants for medical purposes in the region. Flaveria bidentis, also known as “matagusano,” is used by the people of northern Peru to combat cough and bronchitis. The antibacterial activity of the plant has been confirmed for the whole plant extract. For the purpose of this study, whole plant specimens of Flaveria bidentis were collected in the highlands of northern Peru and partially analyzed at the Universidad Privada Antenor Orrego of Trujillo, Peru. A methanol extract of the plant was prepared by grinding it in the presence of the alcohol. The supernatant of the extract was applied to a silica column and column chromatography performed using petroleum ether and ethyl acetate solvents as the eluant. Five fractions containing organic compounds were collected; the first of these components yielded a yellow crystal structure. The remaining four fractions were chromatographed on silica thin layer chromatography (TLC) plates, using petroleum ether and ethyl acetate to separate them. The silica containing the samples was scraped into individual vials and transported to San Diego State University. At San Diego State University, the four compounds were eluted from silica using dichloromethane and stored for further analysis. The yellow crystalline substance was dissolved in chloroform and subjected to TLC using dichloromethane: ethyl acetate (3:1 v/v) as a solvent. The results indicated that two closely migrating compounds might be present. The preparation was analyzed by proton nuclear magnetic resonance spectroscopy (1H-NMR), 13C-NMR, infrared spectroscopy and mass spectroscopy. The NMR and IR spectra of the preparation are similar to a chemical previously reported to occur in Flaveria bidentis but mass spectroscopy indicates that the compounds are novel. They are most likely polyphenol compounds. Further studies to definitely identify these compounds and their pharmacological activity are in progress. Acknowledgements: SDSU MHIRT (NIH) and SDSU MBRS (NIH) programs for fellowships for GC. Funded by the SDSU MBRS/IMSD Program 2R25GM05890609A1
### #115 11:00 am

**Language, Cognition and Externality**

Jolie Colby, Philosophy  
Sthaneshwar Timalsina, Religious Studies

“Everything is perception only due to the appearance of nonexistent objects”. The eminent words of Vasubandhu, (Indian Scholar from the 4th century CE) have resonated into one of the strongest philosophies from the East. Yogacara philosophy is a phenomenology. It states that all things external to human consciousness are not capable of being ontologically bona fide. This leaves the observer, the human animal with one option for cognition, to observe only through hypothetical perception to never empirically know something for what it truly is. All things such as time, existence, language, etc., are only that of perception. Therefore, everything including the universe and the tools which serve to comprehend the universe are derived from and are essentially consciousness only. That leaves us with many pressing questions one of which is the platform from which our research began. Human beings cannot comprehend externality for what it is in actuality, but can they utilize language in such a way to serve as a bridge between human cognition and externality? Within the constraints of language is their also a transcendentental aspect? Or is language the very limit that keeps us from transcending these cognitive restrictions? Language implies a natural dichotomy in human thinking. By means of language humans isolate aspects of the world into atomized pieces, if this were not so we would never be able to communicate about anything in the world. Language is a binary system for which we overlay onto the agglomeration of matter that is the external world. We do not separate things materially but create cognitive separation to simplify the chaos of externality. Human cognition’s inclination toward abstraction has relied significantly on language as a means to reify the inner mental abstraction with the asymmetrical external world. This is an evolution of human linguistics. After much research we have determined that within the limitation of language there is an implication of its limitlessness because the very concepts of transcendence need to be talked about in order to be realized. We will conclude that language allows us to create more illusion, but it is the very thing that allows us to surpass it in the end. Language is finite but the ways in which we can use language are infinite.

### #116 11:15 am

**Spinoza on Non-conceptual Content**

Leonard Pollard, Philosophy  
Mark Wheeler, Philosophy

One aspect of the debate concerning the conceptual status of experience focuses on a phenomenon called solicitation; this phenomenon is one in which objects or properties in the world draw certain responses out of a subject. Supposedly, a solicitation, in being responded to fluidly in ones everyday existence, indicates a type of non-conceptual experience. However, while the nature of this phenomenon may be a good indicator that the content of the experience is non-conceptual, it is not completely evident why a solicitation indicates a non-conceptual experience. The purpose of the following essay will be to show that Spinozas Ethics provides a form of thinking about solicitations that is able to explain how a solicitation can be described as non-conceptual. In order to flesh out Spinozas position, both his interpretation of “conatus” and what necessarily follows from a person’s conatus will be presented as accounting for a type of non-conceptual content. A major point of this interpretation will be to show that when some object or property solicits a response, the response of the agent is a result of the agents conatus, and not his conceptual repertoire by which he knows the world.

### #117 11:30 am

**Dissolving the Hard Problem of Consciousness**

Luis Favela, Philosophy  
Mark Wheeler, Philosophy

My goal is to demonstrate that consciousness is a subject of empirical inquiry, no more and no less than any other topic that has been successfully addressed by the natural sciences. With numerous advancements and achievements demonstrated by the natural sciences, many in the field have turned their eyes to the problem of consciousness. Scientists and philosophers alike have generally followed David Chalmers dichotomous connotation of the easy and hard problems of consciousness. The easy problems appear to be open to standard scientific methodology and include the difference between wakefulness and sleep, focused attention, and the unification of sensory perceptions. The hard problem, on the other hand, is, as Chalmers argues, resistant to the standard methodology and includes addressing such issues as phenomenal experience and subjectivity. My aim, based upon
recent breakthroughs in the cognitive and neurosciences, is to defend the necessary reformulations of the easy/hard dichotomy such that both problems, when clearly addressed, will result in a satisfying scientific account of consciousness.

#119 11:45 am

**Goldman’s Social Epistemology**

Michael Jenkins, Philosophy
Angelo Corlett, Philosophy

This paper examines Goldman’s social epistemology as it stems from his book, *Knowledge in a Social World*. I will not try to complete his truth theory, but use it as the starting point for establishing a social epistemology following the traditional justified truth belief approach. Moreover, I will neither try to complete nor clarify his V-value approach, nor to gauge how well Goldman discusses processes for gathering truth. As Goldman states, the V-value is merely a quick and dirty way to gauge the benefits of a certain social approach to knowledge. In the same way, we will use it as a way to help complete his social epistemology in hopes of providing a solid and complete theory that can act as a foundation for future inquiry about social knowledge.

Session A-13

Oral Presentation: Astronomy and Physical Sciences

Friday, February 27, 10:45 am – 12:30 pm

Location: Presidential Suite

#120 10:45 am

**The Biomedical Imaging Potential of Colloidal Indium Nitride Quantum Dots**

Jean Werle, Chemistry
Miriam Bennett, Chemistry

While colloidal quantum dots are useful fluorescent probes for biological studies, the use of quantum dots for in vivo biomedical imaging has been limited due to the toxicities of the heavier elements from which they are composed. Group-III metal nitride quantum dots are expected to be less toxic and to emit light over a wider range of wavelengths than the traditional group II-VI chalcogenide quantum dots. Therefore, these would be an improvement for in vivo imaging. Our current research is focused on devising a new pathway for synthesis of group-III metal nitride molecular clusters which will be used as precursors for this new class of colloidal quantum dots. The results of this project will be presented.

#121 11:00 am

**The Search for Bright Variable Stars in Open Cluster NGC 6819.**

Antonio Talamantes, Astronomy
Eric Sandquist, Astronomy

During this research period data was taken for seven nights at the 1m telescope at Mt. Laguna Observatory for the open cluster NGC 6819. For four of the nights data was taken using a V-band filter. For the three nights remaining nights the data was taken using an R-band filter. Photometry was done using the ISIS image subtraction package. Six new variable stars were located using these techniques. These variable types include a pulsating variable, five detached eclipsing binaries. Of the detached eclipsing binaries, three are near the cluster turnoff and two in the blue straggler region (and one of these has total eclipses). Nine previously known variables (six contact binaries, two detached eclipsing binaries and one near-contact binary) were also studied.

#122 11:15 am

**Cyclic Voltammetry of Tetramethylphenylenediamine in Organic Solvents: A Simple Redox Couple that is Not So Simple**

Sonia Maciejewski, Chemistry
Diane Smith, Chemistry

The cyclic voltammetry of tetramethylphenylenediamine (H2TMPD) in organic solvents shows two waves, the first presumably corresponds to the one electron oxidation to a radical cation and the second corresponds to the oxidation of the cation to the dicationic quinonediimine. In principle, these two reactions should give two waves equal in size, however, the second wave is consistently too small. In order to determine why this is the case, cyclic voltammetry experiments were conducted with both N,N,N,N-tetramethyl-phenylenediamine (NTMPD) and H2TMPD in acetonitrile using different electrodes at various concentrations. With H2TMPD the second wave disappears completely at very low concentrations. In contrast, NTMPD gives two waves that are equal in size at higher concentrations, but at very low concentrations, the second wave is actually bigger than the first. The difference between these two compounds is that H2TMPD has NH bonds, but NTMPD does not. This creates the possibility for proton transfer reactions between the different oxidation states of H2TMPD. Our explanation for the different voltammetry observed for the two different phenylenediamines is that the first wave of the H2TMPD actually corresponds to the two electron, two proton oxidation of half the H2TMPD to the neutral quinonediimine, with the other half of the TMPD absorbing the two protons to give an electroinactive species, equation 1. 2 H2TMPD 2e⁻ = TMPD + H4TMPD2⁺.
Variational Study of Neutron Star Properties
Oliver Hamil, Physics
Fridolin Weber, Physics

A typical galaxy such as our Milky Way may contain up to ten billion neutron stars. Such objects are typically as massive as our Sun but have radii that are a hundred thousand times smaller than the radius of our Sun. The matter in the cores of neutron stars is thus compressed to central densities that are many-times higher than the densities inside atomic nuclei. A rigorous theoretical determination of the central densities of neutron stars is therefore not possible. This paper presents an intriguing alternative approach to the maximum-density problem of neutron stars, which is based on a variational mathematical study. The basic assumptions that we make are: (1) Einstein’s theory of General Relativity is the correct theory of gravity, (2) the pressure-density relation inside neutron stars satisfies both the microscopic stability condition (matter does not collapse) as well as the causality condition (speed of sound is less than the speed of light), and (3) the pressure-density relation below some matching density is reliably known, which is the case for neutron stars. No specific assumptions about the pressure-density relation in the stellar core are made. Based on these assumptions, we determine the maximum possible central densities of neutron stars as a function of stellar mass and rotational stellar frequency. Our findings allow us to draw important conclusions about possible phase transitions in the cores of neutron stars, such as the formation of new and exotic particle condensates and/or new states of matter (like quark matter) searched for in the most powerful terrestrial particle colliders. They are also key for the interpretation of rapidly rotating compact stars, which are being searched for with the latest generation of Radio and X-ray telescopes.

Cooling of Superconducting Strange Stars
Rodrigo Negreiros, Physics
Fridolin Weber, Physics

Quarks are the building blocks of protons, neutrons and heavier particles known as Hyperons. In the ultra-high dense environment of neutron stars (up to 20 times more dense than ordinary nuclear matter), these particles might be squeezed together so tightly that they overlap and ultimately melt, forming a new state of matter called strange matter. This state is composed of a mixture of up, down and strange quarks and the stars made up of such matter are known as strange stars. The nature of the interaction of the quarks allows them to form a superconductor, a state characterized by having zero electrical resistance. The thermal characteristic of this superconducting strange matter is drastically different than non-superconducting matter and even more different than ordinary nuclear matter. Because of this, the cooling of superconducting strange stars is unique and might be of key importance to determining whether or not these objects really exist in the universe. In this work we thoroughly investigate the cooling of superconducting strange stars by considering the most sophisticated models which account for all of the thermal
properties of such an exotic state of matter. Special attention is paid to the phenomena known as the Meissner effect, in which magnetic field lines are expelled from a superconductor. We will show that the magnetic field in superconducting strange star is trapped in rotationally induced vortices and expelled from the star, depositing some energy on its surface. By taking this into account when simulating the cooling of the stars we obtain a very good agreement with observations of compact objects known as Soft Gamma-Ray Repeaters (SGRs) and Anomalous X-ray Pulsars (AXPs), and thus reconciling the theory of strange stars with observations of compact stars.

Session A-14
Oral Presentation: Perspectives on Space and Time
Friday, February 27, 10:45 am – 12:30 pm
Location: Quetzalcoatl A

#127 10:45 am
*Experiencing ‘Green’ through Film*
Emily Powers, Geography
Stuart Aitken, Geography

Going green can be used to describe anything from the body to an entire country (and many other spaces in between), and by recognizing the assorted scales of green spaces, this project aims to deepen an understanding of how the multiple definitions of going green impact space, the spatial imaginary, and add a new perspective to the performativity of space. In thinking through how research is collected, compiled, and then portrayed to certain audiences, I argue that utilizing the visual means of film brings to life research in a way that has the potential to reach a mass audience— an audience who might be interested in seeing green in order to better consider the future impact of greening (specifically in thinking about environmental education). Through qualitative investigation, I created a documentary film on the phrase going green and spent time with high school students screening the film and filming the post-screening discussions. Film is about movement and space; space in film is a powerful tool to frame characters, display spectacle, accommodates actions, and create place. Social science research is full of bodies, movement, action, and spectacle; it is incredibly difficult to portray that movement in strictly textual format and traditional academic arenas. The text is important, and the visual- the film- is equally as important of a form, tool, and outlet for research. Going green and the multiplicities of green space highly involve the action of looking, showing, experiencing, and therefore visualizing what green can mean.

#129 11:00 am
*Time on Social Networking Sites*
Galina Shmeleva, Communication
Peter Andersen, Communication

Problem and Hypotheses. Social Networking Sites (SNS) are a rapidly diffusing, extremely popular tool of Computer-Mediated Communication (CMC) among college students. Though SNSs possess some core characteristics of CMC, they have additional, unique features such as high level of social presence, low anonymity, and public display of connections. Online social networking is a technological innovation entailing important social implications in the way people nowadays communicate with each other. The problem in the current study is the time consuming and even addictive character of SNS usage examined in the framework of the Theory of Diffusion of Innovations. It is hypothesized that at least six factors are associated with the patterns of SNS usage. One of them is innovativeness of individuals and their experience with the new media: early adopters are more technologically savvy than late majority and supposedly spend more time online. Yet people new on SNS are sought to be heavier users than those who have been using SNSs for a longer period of time. The relationship between the time spent on SNSs, motives of SNSs use and activities performed on SNSs is predicted. Regarding other factors, heavier SNS users supposedly have more friends listed on their SNS profile and yet have lower level of self-esteem than lighter SNS users. It is also hypothesized that the relationship between the level of satisfaction with close friendships and the time spent on SNSs is moderated by the extent to which people use SNSs to communicate with close friends. The study predicts that the amount of time spent on SNS is positively related to specific positive (i.e. social support, satisfaction, improvement of self-esteem) and negative (envy, stress caused by information overload, anxiety, loss of control) emotions derived from SNS experience. Method. The project employs a survey of San Diego State University undergraduate students drawn from a required general education course including students from all majors, the most likely demographic to utilize SNS. Data is collected by means of a standard questionnaire on surveymonkey.com. Inventories incorporated in the questionnaire are Self-esteem Scale, CMC Competence Scale, Facebook Intensity Scale, Relational Health Indices scale. Results and conclusions. The research will reveal the degree to which addiction to SNSs occurs and if it is associated with low self-esteem, low quality of relationship with close friends or absence of them, other personality and social characteristics, and behavioral patterns that have an impact on how people network online. The research will describe personality characteristics of young people who use SNSs and SNS features and functions users find the
most attractive. The results of the research are useful not only to answer important theoretical questions within scholarly discourse about computer-mediated communication, but also for businesses that increasingly incorporate SNS in their communication strategies and for students who may have difficulties with excess SNS use.

#130 11:15 am

**Media Effects Before, During, and After Natural Disasters**

Xiaosi Wu, Journalism and Media Studies  
Noah Arceneaux, Journalism and Media Studies

Deducing the effects of natural disasters is a compelling objective that now receives worldwide attention. The news media plays a pivotal role in almost every aspect of the disasters and their aftermath, especially with regard to disaster mitigation and disaster management. The media receives the highest attention during the disaster period, as it is the most significant communication tool for the affected areas to gain the support, and for those people outside to be informed of what is happening in the affected areas. If the media doesn’t perform appropriately before, during, and after disasters, the natural disasters may evolve into social disasters, resulting in losses that could be prevented. The importance of the media during natural disasters is obvious, but what role the media plays, and to what extent it influences people’s perceptions of the disasters become more significant topics for scholars to answer. As such, this research examines the media's effects during disasters, aiming to address the media's capabilities to improve people's preparedness and responses to disasters.

#131 11:30 am

**A Spatiotemporal Analysis of Ambient Fine Particulate Air Pollution Using the Bayesian Maximum Entropy Model**

Wyson Pang, Geography  
George Christakos, Geography

The purpose of this research project is to test the hypothesis that the Bayesian Maximum Entropy (BME) Model is a superior method than traditional geostatistics techniques, particularly ordinary kriging (OK), in providing predictive spatiotemporal estimates of ambient fine particulate air pollution. Additionally, this research project aims to demonstrate the BME Model’s ability to provide more accurate and realistic predictions and act as a valuable tool for air pollution studies. Data consisted of daily PM2.5 measurements acquired from 38 monitoring stations throughout North Carolina over the year 2000. The methodology consisted of extensive data preprocessing, estimate and statistical moment generation using SEKS-GUI, and a quantitative comparison of the BME Model estimates to those of OK by analyzing the error variances of 4 monitoring stations of interest. The BME Model yielded error variances that were significantly smaller than those yielded from OK for all 4 monitoring stations across space and time. The BME Model also provided spatiotemporal PM2.5 estimates that were more realistic and accurate than those of OK, thus showing the BME Model to be a superior method than OK.

#132 11:45 am

**Exploring Land Use Change in Southern Nepal Using an Agent-based Model**

Alex Zvoleff, Geography  
Li An, Geography

The Western Chitwan Valley, in southern Nepal, offers an ideal setting for studying linkages between fertility, community context, and land use change. The valley was partially cleared of forest for settlement in the 1950s and currently supports a mostly rural population bordered by the Chitwan National Park and Barandabar forest, home to the endangered Bengal Tiger (Panthera tigris tigris) and One-horned rhinoceros (Rhinoceros unicornis). Since 1996, the Chitwan Valley Family Study (CVFS) has tracked land use and demographic data on the local population in a longitudinal format ideal for the study of relationships between population and environment. Previous examination of data from the CVFS has indicated fertility is an important determinant of land use change. In order to better incorporate feedbacks between fertility and environmental change, we use data from the CVFS to construct an agent-based model of population at the individual and household level, community context, and land use. Using the model, multiple scenarios can be examined, and the results compared with empirical data. Initial results suggest inclusion of feedbacks between fertility and land use change are critical to fully understanding the system. Future research using a spatially explicit agent-based model will allow a better representation of spatial variations in the determinants of land use, as well as of the spatial distribution of land use change, which may be an important determinant of habitat quality in the forest areas surrounding the population. The Western Chitwan Valley, in southern Nepal, offers an ideal setting for studying linkages between fertility, community context, and land use change. The valley was partially cleared of forest for settlement in the 1950s and currently supports a mostly rural population bordered by the Chitwan National Park and Barandabar forest, home to the endangered Bengal Tiger (Panthera tigris tigris) and One-horned rhinoceros (Rhinoceros unicornis). Since 1996, the Chitwan Valley Family Study (CVFS) has tracked land use and demographic data on the local population in a longitudinal format ideal for the
study of relationships between population and environment. Previous examination of data from the CVFS has indicated fertility is an important determinant of land use change. In order to better incorporate feedbacks between fertility and environmental change, we use data from the CVFS to construct an agent-based model of population at the individual and household level, community context, and land use. Using the model, multiple scenarios can be examined, and the results compared with empirical data. Initial results suggest inclusion of feedbacks between fertility and land use change are critical to fully understanding the system. Future research using a spatially explicit agent-based model will allow a better representation of spatial variations in the determinants of land use, as well as of the spatial distribution of land use change, which may be an important determinant of habitat quality in the forest areas surrounding the population.

#133 12:00 pm

A Framework for Comparative Space-time Analysis

Xinyue Ye, Geography
Sergio Rey, Geography

This paper explores the linkages between recent contributions in the spatial economics literature and developments in ESDA (exploratory space-time data analysis). We identify some areas where cross-fertilization between these two fields would have considerable promise. We suggest a comparative exploratory analysis framework applied to space-time data series for the purposes of identifying interesting new patterns and suggesting new hypotheses about the nature of spatial economic growth. At the same time, the framework ties a number of theoretical constructs to ESDA measurements, which can be used to explore development mechanisms across various economic systems.

Session A-15
Oral Presentation:

Language Learning Disorders and Processing I

Friday, February 27, 10:45 am – 12:30 pm

Location: Quetzalcoatl B

#134 10:45 am

Disfluencies in American Sign Language and English: What UMs and “uhhs” Tell Us About Language Production

Maria Christiana David, Speech, Language, and Hearing Sciences
Karen Emmorey, Speech, Language, and Hearing Sciences

Spontaneous speech is rarely fluent; on average, speakers produce six disfluencies for every one hundred spoken words (Fox Tree, 1995). Importantly, the type and nature of disfluencies can provide insights into how language is planned prior to articulation. Although there have been numerous studies of disfluencies in spoken languages, disfluencies in signed languages are virtually
unexplored. We compared disfluencies in American Sign Language (ASL) and English to determine if the type and number vary between the two language modalities. Because the sign articulators (the hands) move slower than speech articulators (the vocal tract), we hypothesized that ASL signers would produce fewer disfluencies (e.g., pauses and the ASL equivalent of um) than English speakers because signers may have more time to plan their utterances. The data were drawn from a study in which 40 participants described a map of a convention center using either ASL (N = 20 Deaf signers) or English (N = 20 hearing speakers) (Emmorey et. al. 2000). Videotaped language samples were examined for four types of disfluencies: pauses, fillers, restarts, and editing expressions. We analyzed the rate and characteristics of each type of disfluency across both languages. English speakers produced more disfluencies than ASL signers (M = 15.63 vs. 6.36 disfluencies/minute, respectively), t(38) = 5.42, p < .001. The rate of fillers (English M = 5.78; ASL M = 1.58), restarts (English M = 2.98; ASL M = 1.14), and pauses (English M = 6.52; ASL M = 3.42) was significantly higher in English than in ASL (fillers t(38) = 4.04 p < .001; restarts t(38) = 3.31 p = .002; pause t(38) = 3.47 p = .001). The rate of editing expressions (e.g., I mean; WRONG) did not differ significantly between languages. Overall, the results suggest differences between language production systems for signers and speakers. Specifically, ASL signers may be able to detect and correct errors prior to articulation of a sign due to the large motor movements used for signing and the simultaneous structure of ASL. Conversely, speech involves rapid, sequential articulations, which may make it more difficult to self-correct disfluencies prior to articulation of a word.

#135 11:00 am
Assessing the Morphosyntactic Abilities of Bilingual Children with Language Impairment

Amanda Kramer, Speech, Language, and Hearing Sciences
Sonja Pruitt, Speech, Language and Hearing Sciences

Purpose: Recent survey studies (e.g., Kritikos, 2003) have shown that speech-language pathologists do not feel that they can adequately assess the language abilities of bilingual individuals let alone accurately diagnose language impairments in these cases. This is problematic given that 19.5% of people over the age of five living in the United States (42.3% in California) speak a language other than English in their home (US Census Bureau, 2007). The errors made by bilingual children often parallel those made by monolingual children with language impairment, which has resulted in both the over- and under diagnosis of young bilinguals. Research has consistently shown that deficits in grammatical morphology (the formation of words and sentences) may serve as a clinical marker of childhood language impairment (Tager-Flusberg, 1999). However, tools available to assess these skills in bilingual children are limited, especially in less commonly spoken languages, making assessment of this language domain a daunting task for clinicians who do not speak the home language of the child. The purpose of this presentation is to develop and test a protocol that assesses the morphosyntactic abilities of bilingual children whose home languages speech-language pathologists do not speak. Method: A five-step protocol for bilingual morphosyntactic assessment was adapted from Goldstein and Fabianos (2007) protocol for bilingual phonological assessment. The steps include: (1) obtaining a detailed case history; (2) obtaining language samples; (3) performing an independent analysis; (4) performing a relational analysis; and (5) performing an error analysis. We evaluated the effectiveness of the adapted protocol using a case study of a bilingual Lithuanian-English speaking child. Conclusion: It is possible for clinicians to accurately and efficiently assess the morphosyntactic abilities of bilingual children without speaking their home languages. The adapted protocol provides clinicians with a practical, research-based method for conducting this type of assessment.

#136 11:15 am
An Examination of the Role Phonology Plays in the Zero-S Productions of Four Children Who Speak African American English

Amanda Keare, Speech, Language, and Hearing Sciences
Jessica Barlow, Speech, Language and Hearing Sciences

Children who are dialectal speakers of African American English (AAE) have been documented to zero-mark word-final -s (referred to hereafter as zero-s) in particular when it carries meaning in the form of plural formation (e.g., dogs as dog), third-person-singular verb tensing (e.g., she walks as she walk), or possessive formation (e.g., my mothers as my mother). Previous studies focusing on this dialectical feature of AAE have examined zero-s in the context of morpho-syntax; however, researchers have thus far ignored detailed examination of the phonological contexts in which instances of zero-s occur. In this study, we will describe the patterns of zero-marking of -s in the speech of 4 children who speak AAE within a morpho-phonological framework. In particular, we will focus on the role that phonology plays in the well-documented morphological patterns of zero-s, focusing on the phonotactic contexts of zero-s versus instances of -s retention. It is predicted that zero-s is most likely to occur in the following contexts: when -s occurs between obstruct consonants; when -s is a 3rd-person morpheme, and when the addition of that -s creates a consonant cluster; and in semantically redundant contexts. The results will provide researchers and clinicians alike with detailed information regarding contexts...
in which zero-s occurs and to what extent the instances of zero-s are related to the phonological characteristics of the dialect. It is hoped that such detailed information regarding the phonotactics of zero-s will offer additional insight into the language use of children who speak AAE.

#137 11:30 am

Role of Language Exposure in Learning L2: Persian Learners of English in English vs. Non-English Speaking Environment

Nilofar Agah, Linguistics
Soonja Choi, Linguistics

The majority of the world’s population speaks more than one language; they have either learned the second language that is also spoken in their home countries or learned a globally accepted language such as English, French or German. Therefore, the study of bilingualism and multilingualism can provide valuable insights into human cognition and language processing. The focus of this study is to investigate the language learners in the course of learning the lexicon; it also takes a close look at the extent that different environments in which the learner acquire the target language affect the learning process and to become more “native-like”. It is expected that the word production and word association of Persian L2 learners in the English speaking environment will be closer to the native speakers responses in comparison with the Persian L2 learners in Iran. For instant, a close comparison of native English speakers responses in Cramer (1968) with the Persian Language learners in the U.S. might show more similarities than the Persian Language learners in Iran. The overall hypothesis is that language learners who learn the target language in the target language environment will gain native-like competence faster than those who learn the target language in a non-native environment.

#138 11:45 am

Recognizing Timing Mismatches for Co-speech Gesture and ASL Signs

Danielle M. Lucien, Speech, Language and Hearing Sciences
Karen Emmorey, Speech, Language and Hearing Sciences

People are very sensitive to asynchronies between auditory and visual events, such as when the sound is not in sync with the picture on television. For both speech and non-speech events (e.g., a hammer hitting a peg), people are more sensitive to asynchrony when the audio precedes, rather than follows, the visual event. When people gesture while speaking, their gestures either slightly precede or occur simultaneously with the associated spoken word, but rarely lag behind it. Similarly, when ASL-English bilinguals produce a sign while speaking English (a code-blend), the sign is produced simultaneously with or slightly before the word. We investigated whether sensitivity to asynchrony in co-speech gesture and code-blends is the same as that for other linked audio/visual events. Subjects were presented with video clips of two people gesturing or producing code-blends while talking (with the mouth obscured). Movies were made from each conversation with audio offsets of 3, 6, 9, 12, or 15 frames both leading the video (A-lead) and lagging (A-lag) the video (range: +/- 100–500ms). Subjects watched both a “forward” block of video clips starting with the audio and video in sync, responding when they felt that the clip was asynchronous, and a “backward” block starting with audio and video out of sync, responding when they felt the audio and video were synced. Our data (N=16) show that sensitivity to asynchrony in ASL-English code-blends patterns similarly to that for speech and object audio-visual stimuli, with smaller thresholds for A-lead (mean = 187ms) than for A-lag (mean = 327ms). In contrast, co-speech gesture (N=16) patterned differently, with only a small difference between A-lead and A-lag (mean = 254ms, mean = 284ms, respectively). These results suggest that the signs and speech in code-blends are tightly linked, while gesture and speech operate more independently.

Session B-1
Poster Presentation:
Computational Sciences, Mathematics, and Statistics
Friday, February 27, 1:00 – 2:30 pm
Location: Montezuma Hall South

#139 1:00-2:30 pm

Data Mining Analysis of HIV-1 Protease Crystal Structures

Gene Ko, Computational Science
Sunil Kumar, Electrical Engineering

A data mining study has been done using HIV-1 protease crystal structures complexed with FDA approved HIV-1 protease inhibitor drugs. Quantitative Structure-Activity Relationship (QSAR) descriptors has been computed for the binding pocket of each crystal structure, yielding approximately 500 constitutional, topological, geometrical, electrostatic, and quantum mechanical descriptors for each structure. Several supervised (hybrid binary particle swarm optimization artificial neural network, random forest) and unsupervised learning (Locally Linear Embedding) techniques have been explored for feature selection to determine a QSAR model containing the most relevant descriptors needed to cluster each crystal structure according to their bound ligand. This method of computational modeling and screening process would aid in the understanding of the effect HIV mutations...
have on the binding affinity of various present and future HIV-1 protease inhibitors due to structural changes arising from the mutations.

#140 1:00-2:30 pm

**Ultracold Atom Interferometry in a Circular Waveguide**

Martin Kandes, Physics
Michael Bromley, Physics

Simple circular waveguides promise to be an ideal architecture for building high-precision, guided matter-wave interferometers that exploit the coherent source of ultracold atoms provided by dilute atomic gas Bose-Einstein condensates. Using finite difference methods, we perform numerical calculations of the time-dependent Gross-Pitaevskii equation in one and two dimensions to simulate gravity-induced quantum interference between counterpropagating condensate wave packets within a simple harmonic oscillator ring. By studying the propagation dynamics of BECs inside the ring and measuring the phase shifts observed in the resulting interference patterns, we aim to understand how the interplay between multimode excitations and nonlinear, mean-field interactions will impact the performance and interferometric stability of these systems. Our results vividly illustrate many of the challenges and trade-offs that guided matter-wave interferometry experiments will likely face in the near future.

#141 1:00-2:30 pm

**A SOA for Science Applications in Cyberinfrastructure**

Carny Cheng, Computer Science
Mary Thomas, Computational Science

This paper explores a framework that allows distribution of single-threaded applications on cluster and grid computing resources. This framework provides the user a Web Service based on standard the standard SOAP protocol to access the applications. This is an essential tool in allowing scientists to overcome potential bottlenecks in scientific computing. In this paper we analyze the performance of our system for the cyberCHEQs application for a number of problem sizes.

#142 1:00-2:30 pm

**Statistical Inference of the Warmest Months of the Contiguous U.S. Since 1895**

Christine Lee, Statistics
Samuel Shen, Mathematics and Statistics

Error variance calculations are performed for gridded temperature values for the contiguous United States. The data used are the mean temperature anomalies from the United States Historical Climatology Network Version 2 (USHCN V2). The error calculations are computed for each grid box in a 3.5 degree longitude by 2.5 degree latitude grid for the USHCN V2 station network. Furthermore, the error calculations are computed for each month from January 1895 to December 2008. The error variance is composed of a spatial variance, sigma, and a correlation factor, alpha, for each month of every grid box that contains at least four station temperature anomalies. Both the spatial variance and correlation factor are smoothed using a five year right-shifted time window. Grid boxes with less than four stations will be missing spatial variances and correlation factors; spatial interpolation is applied to fill them in. The error variance is finally calculated as $E^2 = \alpha \times \sigma / N$, where N is the number of stations reporting data for a particular month in a grid box. The error variances are then summarized into several forms: a seasonal and annual average error, and an optimal regional average. The optimal regional average involves the use of empirical orthogonal functions to further refine the error variances from all the grid boxes into a single error value to represent the contiguous United States. The final goal of creating these error values is to construct confidence intervals for USHCN V2 monthly mean temperature anomalies and statistically rank the top ten hottest years. These rankings can be used in conjunction with other weather data to study the affect mean temperature has on climate.

#143 1:00-2:30 pm

**Soliton Transport through a Ratcheting Potential**

Max Rietmann, Applied Mathematics
Ricardo Carretero, Mathematics and Statistics

This research focuses on bright soliton solutions to the Nonlinear Schrodinger equations (NLS), which models behavior seen in Bose-Einstein Condensates (BECs). Specifically, soliton transport induced by a time-varying sinusoidal can perhaps be optimized based on the parameters of the system despite the Brownian-like motion of the individual solitons. The “ratcheting” of the potential induces chaotic movement in the Soliton, but parameter-based statistical averaging will help determine the optimum transport possible.

#144 1:00-2:30 pm

**Solutions to the Forced Korteweg-de Vries Equation**

Aaron Donahue, Mathematics
Samuel Shen, Mathematics and Statistics

In the field of fluid dynamics a problem of particular interest is the effect of flow over small perturbations. The Forced Korteweg-de Vries equation ( Forced-KdV for short) is a nonlinear wave that describes such an effect in shallow channels. This project numerically and analytically explores the dynamics of the Forced-KdV
additional reaction steps are currently being probed to determine the minimum energy path. The most stable molecular geometries are calculated at the beginning and end of each step in the reaction, to find the reactant and product energies. Using the program Cosmo-thermx, the COSMO-RS model will then be applied to account for the considerable solvent effects in ion-mediated reaction dynamics. This will allow determination of the influence of pH on the reaction system.

#145 1:00-2:30 pm
A Statistical Analysis on the Sampling Errors of the Alberta Acid Deposition Networks
Markus Bantle, Mathematics
Samuel Shen, Mathematics
In this study we focus on the total acid deposition of Alberta, Canada measured in terms of potential acid input or PAI. Currently there are 9 stations throughout the region that contribute data regularly. The primary aim of this project is to rank the stations by importance in producing an accurate assessment. The technique of empirical orthogonal functions is employed to determine the contribution of each station to the overall error in the PAI calculation. Furthermore this ranking can be used to decide which stations do not add sufficient new information and thus can be closed. The second aim of this project is to explore possible locations for new stations to optimize data collection and PAI estimation.

#146 1:00-2:30 pm
Computational Investigation and Kinetics Thermochemistry of TTQ Cofactor
Belynda Sanders, Chemistry
Andrew Cooksy, Chemistry
Among the simplest electrobiochemical pathways to characterize experimentally is a series of electron transfer reactions that provide the mechanism for dehydrogenation of methyamine. We describe a computational investigation of the chemical reaction mechanism for the enzyme activity of methyamine dehydrogenase in converting methyamine to ammonia and formaldehyde, focusing on the activity of the co-factor 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 reaction energies of several reaction steps have been mapped along selected reaction coordinates, and
the first preference test were not significant. The results of the Hedonic tests were statistically significant. This indicated that a majority of the sensory panelists liked the vegan cheesecake. The cheesecake had a high water activity (0.9175), which implies that it had a short shelf life. The cheesecake had a mean lipid content of 0.22 g. A mean force of 122.27 g was required to fracture the cheesecake. The results of the lipid analysis and nutrient analysis supported the hypothesis that the cheesecake was indeed lower in calories and fat compared to a generic cheesecake.

**#149 1:00-2:30 pm**  
**Health Disparities as a Function of Insurance, Health Literacy, and Subjective Social Status**  
Kim Nhat Nguyen, Psychology  
Vanessa Malcarne, Psychology

Health disparities are defined by NIH as the differences in the incidence, prevalence, mortality, and burden of diseases and other adverse health conditions that exist among specific population groups in the United States (NIH, 2002). Disparities in health outcomes continue to exist among ethnic minorities. Research suggests that health disparities exist as the result of broad interactions among biological, environmental and health behavioral factors. Studies have shown that racial and ethnic disparities in health can partly be explained by differences in socioeconomic and insurance status. The present study investigated the relationship of insurance coverage, health literacy, and subjective social status to health status in Hispanic women. Participants were 493 Hispanic women (mean age = 38) from the greater San Diego area. Participants completed a battery of self-report questionnaires; 248 completed questionnaires in English and 245 completed questionnaires in Spanish. Various self-reported surveys were collected including a Personal Health Survey (PHS) that measures education, occupation, employment status, personal and family health, health screening and health insurance. Two items were used from the Short Test of Functional Health Literacy in Adults to measure high versus low health literacy. The MacArthur Scales of Subjective Social Status (SSS) were used to measure perceived social status. One question from the Health-related Quality of Life-4 (HRQOL-4) was used to measure general health status. This question was also used as the dependent variable throughout our analysis. Those with insurance reported significantly better health status compared to those without insurance, \( p < .0001 \). Persons with Medicaid reported significantly poorer health compared to those with other health plans. Participants reporting being less confident in filling out medical forms reported significantly poorer health, \( p < .05 \). Participants who more often have others help them read hospital information reported significantly poorer health, \( p < .0001 \). Women who perceived themselves as having lower subjective social status reported significantly poorer health, \( p < .05 \). Overall, poorer health was related to not having insurance, having Medicaid instead of other types of insurance, lower health literacy, and lower subjective social status in this particular Hispanic sample.

**#150 1:00-2:30 pm**  
**Healthcare Policy Description and Political Support**  
Geoffrey Wetherell, Psychology  
Melody Sadler, Psychology

Although the majority of Americans (64%) are in favor of government funded healthcare (http://www.cbsnews.com), support for the policy between democrats and republicans differs dramatically depending on the label used. When asked if they were in favor of socialized medicine 70% of democrats said yes, whereas 70% of republicans said no (http://www.physorg.com/news122214361.html). This divide could exist because socialized medicine may violate the value of individualism that conservatives tend to support, whereas it is consistent with the value of egalitarianism that liberals tend to support (Skitka & Tetlock, 1993). Value violation is associated with reactions of anger and holding the group members responsible for their condition (Reyna 2000; Henry Reyan & Weiner 2004); this may in turn affect support for healthcare programs when they are labeled as socialized medicine. The current research examined whether or not conservatives and liberals differed in their support for universal healthcare and socialized medicine, and if this relationship is mediated by attributions of responsibility and emotional reactions. Participants were prompted to think and write about the typical person who could benefit from universal healthcare in one condition, or socialized medicine in the other. They then responded to scales designed to assess their personal values, how responsible people in need of healthcare programs are for their poor circumstances, emotional reactions towards them, demographic information, and ratings of they typical person who might benefit from universal healthcare or socialized medicine. The current research examined whether or not conserva-

tarianism that liberals tend to support (Skitka & Tetlock, 1993).
#151 1:00-2:30 pm

**Match Between Parent-reported Target Problems and Child's Diagnoses: Does Socioeconomic Status Matter?**

Eren Clark, Psychology  
May Yeh, Psychology

Previous research has indicated a negative correlation between socioeconomic status and mental illness. Yet socioeconomic status is positively correlated with seeking help for mental illness and utilization of mental health services. Parents are integral figures in the mental health of children and make very important decisions about seeking treatment for children’s mental health issues, as well as utilizing available services and adhering to the recommendations made during treatment. Research has indicated that when treatment processes are incongruent with parental expectations and preferences, outcomes in children’s treatment are poorer, including lower attendance of treatment sessions and higher rates of attrition. Socioeconomic status may be a factor that contributes to incongruity between parental preferences and expectations of treatment, and actual treatment processes. The present study hypothesized a positive correlation between socioeconomic status (indexed by parental income and education level) and the degree of congruity between parent-reported target problems and the researcher given diagnosis. The present study was based on archival data from the Patterns of Youth Mental Health Care in Public Services Systems Project, (AKA Patterns of Care/POC; Richard Hough, PI). Data were obtained on 1125 youth who had utilized outpatient mental health services within the previous year. Analyses indicated a significant positive correlation between socioeconomic status and the degree of congruity between parent-reported target problems and the diagnosis given by a researcher. Results of the study imply that parents of differing levels of socioeconomic status may have differing criteria for what types of problems require professional services. Previous research has indicated that parent of higher socioeconomic status may have a lower threshold for problem behavior and, therefore, may more readily seek services to curtail the behavior. Families may benefit from psychoeducation programs designed to increase awareness of children’s unmet need and programs that facilitate parental engagement and consideration may lead to more positive outcomes for children and their families.

#152 1:00-2:30 pm

**Demographic Characteristics as Predictors of the Likelihood of Hiring a Health Care Advocate among Two Age Groups**

Nancy E. Calderón, Psychology  
Terry A. Cronan, Psychology

The health care system is difficult to navigate, and the possibility of hiring a health care advocate has been introduced recently in the United States. In this study, we examined the demographic predictors of the likelihood of hiring a health care advocate among people younger than 40 and those 40 and older. It was hypothesized that those who were 40 years and older would be more likely to hire a health care advocate than those less than 40 years old. Participants (n = 878; 51.2% female) were randomly selected to complete a set of questionnaires that assessed age, gender, ethnicity, level of education achieved, annual family income, number of people in the household, and the likelihood of hiring a health care advocate. Separate multiple regression analyses were conducted for the two groups. The results indicated that, in the under 40-year-old group, women indicated a greater likelihood than men of hiring a health care advocate (β = .143; p < .05), and people who did not have at least a bachelor's degree were more likely to hire a health care advocate than those who had at least a bachelor's degree (β = -.164; p < .05). In the older group, the only statistically significant predictor of the likelihood of hiring a health care advocate was age. As age increased, the likelihood of hiring a health care advocate decreased (β = -.169; p < .01). This finding is contrary to expectations, and more research is needed to determine why older people would be less likely to hire a health care advocate. Separate multiple regression analyses were conducted for the two groups. The results indicated that, in the under 40-year-old group, women indicated a greater likelihood than men of hiring a health care advocate (β = .143; p < .05), and people who did not have at least a bachelor's degree were more likely to hire a health care advocate than those who had at least a bachelor's degree (β = -.164; p < .05). In the older group, the only statistically significant predictor of the likelihood of hiring a health care advocate was age. As age increased, the likelihood of hiring a health care advocate decreased (β = -.169; p < .01). This finding is contrary to expectations, and more research is needed to determine why older people would be less likely to hire a health care advocate. With the increasing number of people accessing health care in the United States and the decreased ability of many people to care for their parents or other loved ones, the likelihood of hiring someone to help navigate the health care system may increase. It is important to determine which people are likely to hire advocates, and for what services.

#153 1:00-2:30 pm

**The Effects of Social Support on the Likelihood of Hiring a Health Advocate**

Vanessa L. Spiteri, Psychology  
Terry A. Cronan, Psychology

With the increasing complexity of health care it has become a constant struggle for patients to navigate the health care system effectively. It is crucial that patients are satisfied with their health related services, that their best interests are being served, and that proper precautions are taken to ensure safe and effective treatments. In order for these fundamental standards to be met,
health advocates may be necessary. The present study was designed to examine the relationship between social support and demographic variables and the likelihood of hiring a health advocate. Participants (n=878; 48.2% male; mean age = 50.87) completed a brief questionnaire that included demographic variables, a one-item likelihood to hire scale, and a one-item satisfaction with social support scale. It was hypothesized that as social support decreases the likelihood of hiring a health advocate increases. Participants were separated into two groups: those who are less than 40 years old (group one) and those who are 40 years old or older (group two). A multiple regression analysis was conducted for each group, which included social support, marital status, and education. For group one, the results indicated that as people’s satisfaction with their social support increased, the likelihood of hiring a health advocate increased (β=0.152; p = 0.031). In addition, having a bachelor’s degree or additional education was associated with a decrease in the likelihood of hiring a health advocate, compared to individuals without a bachelor’s degree (β=−0.201, p=0.004). For group two, as people’s satisfaction for their social support decreased, the likelihood of hiring a health advocate increased (β =−0.098, p=0.030). Furthermore, single individuals were more likely to hire a health advocate than married individuals (β=−0.178; p=0.005) or than individuals who were divorced, widowed, or separated (β=−0.137; p=0.027). These findings indicate the importance of social support in understanding patients’ likelihood of hiring a health advocate.

**#154 1:00-2:30 pm**

The Role of Individual and Health-related Factors in Ratings of Healthcare Confidence

Lauren K. Allbee, Psychology
Terry Cronan, Psychology

The subject of healthcare has long been a primary concern within the United States. Quality of healthcare and patient satisfaction within the healthcare system are growing areas of research. It is important to understand how individual factors, such as demographic characteristics, health beliefs, and attitudes relate to confidence in their healthcare coverage. The present study was designed to investigate how demographic factors, self-rated health, and self-reported effort maintaining health relate to confidence in healthcare coverage in the general population. Participants were randomly selected from the general community (n = 889; 48.2% male; mean age = 50.87 (SD = 17.9), mean confidence in healthcare = 7.30 out of 10) and asked to complete questions on age, gender, education, health insurance status, self-rated health, effort maintaining health, and confidence in healthcare (4-item scale measuring confidence in healthcare coverage, hospitals, physicians, and general medical staff; Cronbach’s alpha = .90). A hierarchical multiple regression analysis was conducted with confidence in healthcare as the criterion variable, age, gender, education, and health insurance status entered on step 1, and self-rated health and effort maintaining health entered on step 2. On step 1, age, gender, education, and health insurance status accounted for a significant amount of overall variance in confidence in healthcare (F (4, 846) = 36.247, p<.001, R²=.142). In particular, age (β=.181, p<.001) and having health insurance (β=.274, p<.001) were significantly associated with increased confidence in healthcare. Older people and people who had health insurance reported more confidence in healthcare. On step 2, self-rated health and effort maintaining health accounted for a significant increase in explained variance (F (6,844) = 27.865, p<.001, R²=.17), and effort maintaining health (β=.124, p<.001) was significantly associated with confidence in healthcare. Individuals who reported exerting more effort toward maintaining their health also reported more confidence in healthcare. These findings show that age and health-related factors, specifically health insurance status and the amount of effort people put into maintaining their health, are important in understanding an individual’s confidence in healthcare. More research is needed to understand the causal direction of these relationships.

**Session B-1**

Poster Presentation: Influences on Health

Friday, February 27, 1:00 – 2:30 pm

Location: Montezuma Hall South

**#155 1:00-2:30 pm**

Does Gender Matter? The Relationship between Chronic Stress Type and Risk for Heart Disease.

Smriti Shivpuri, Psychology
Linda Gallo, Psychology

Study Purpose. Chronic stress has been implicated in the etiology of cardiovascular disease (CVD). Research shows that inflammatory processes play a key role in the development of CVD, and that stress contributes to inflammation. Women and men may have variable responses to different types of stressors, as researchers have posited that women are more affiliation-oriented whereas men are more achievement-oriented. The current study investigates whether the relationship between chronic stress type and CVD risk [as indicated by C-Reactive Protein (CRP), an inflammatory marker linked to CVD risk] varies by gender. Sample
and Methods. Data from the baseline examination of the Multi-Ethnic Study of Atherosclerosis (MESA)—a multisite study of an ethnically diverse sample of 6814 men and women ages 45 to 84 years—were used in this cross-sectional study. Chronic stress was represented via a dichotomous variable, contrasting those who reported distressing stress that persisted for at least 6 months with those who did not. Simultaneous multiple linear regression was used to examine the interactive effects of gender and chronic stress type (i.e., relationship stress and job stress) on levels of CRP. Covariates included age, race/ethnicity, socioeconomic status (education, income), smoking, alcohol use, and medication use. Summary of Results. Analyses revealed significant interactions between gender and both relationship-focused stress (B=-.049, p=.001) and job-related stress (B=-.054, p=.001). Simple main effects analyses indicated a significant relationship between stress and CRP levels for females, F(1, 3362) = 11.759, p=.001, but not for males. Females who experienced chronic relationship stress had greater CRP levels than those who did not. A similar pattern was observed for job stress, in that women who reported ongoing job stress had greater CRP levels than those who did not, F(1, 3362) = 5.977, p=.015, however, there was no difference for men. Overall, the pattern of results indicates that women may be more reactive to many different types of stress than men. Effect sizes were small, however, the current findings suggest the need to consider stress domain as well as gender in understanding the impact on CVD risk.

#156 1:00-2:30 pm
Dads Club Photovoice Project: A Snapshot of Fathers & Community in City Heights
Miriah de Matos, Public Health
Amy Pan, Public Health
Hypothesis/Problem: SAY San Diegos Dads Club is a community program that encourages fathers roles as care givers at home and fosters their ability to become leaders in the community. Dads Club participants have a desire to engage with their children and help them succeed both academically and socially. Members of Dads Club seek additional methods and opportunities for creating change to ensure their childrens safety, health, and well-being. Goals/Objectives: This Photovoice project will involve fathers and their children in a participatory process of defining and proposing solutions to community problems and issues affecting families participating in Dads Club. Methods: Photovoice is a participatory qualitative data collection method that uses photography to achieve the following goals: (1) to enable people to record and reflect their community’s strengths and concerns, (2) to promote critical dialogue and knowledge about personal and community issues through group discussions of photographs, and (3) to reach policy makers. Predominantly Latino and Somali fathers and their children will participate in a three session program that includes training on Photovoice methodology, photography by participants, photo selection and group discussion, a data dissemination meeting to clarify themes identified by participants, and a community event to share findings with policy makers. The Institute for Public Health has created a facilitator training and a participant training for this project. These trainings address topics such as safety, ethics, and basic photography along with the use of participant consent forms and release forms for photographed subjects. Results: The data collected, including participant photographs and themes identified through group discussions, will be used to assess three factors: (1) community violence (conditions, exposures), (2) the experience of fatherhood (community concerns in context of family & pathways of action), and (3) impact of Dads Club. The Institute for Public Health will code and analyze the transcripts of group discussions for themes and clarify the identified themes with the participants. The themes and photographs will be shared at a community event, organized by participants, to communicate the participants concerns to local policy makers and leaders.

#157 1:00-2:30 pm
Music and Emotions in Williams Syndrome
Philip Lai, Psychology
Judy Reilly, Psychology
Williams Syndrome (WS) is a rare neurodevelopmental genetic disorder, characterized by a hemizygous deletion of about 25 adjacent genes on the long arm of chromosome 7. 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 weaknesses and strengths 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. Numerous anecdotes exist regarding musical abilities in WS individuals. To understand the musicality of WS individuals, the present study examined the perception and production of music in this population. Two tasks were utilized to investigate the extent to which musicality is characteristic of the WS population. First, participants created a song where various aspects of musicality were analyzed. It was hypothesized that WS individuals would produce music more quickly and play music for longer periods of time than typically developing (TD) individuals. A 2x2 (Group) X (Times) repeated measures ANOVA was performed. Second, narratives elicited by emotional music were coded for emotional language to evaluate whether the WS group is more emotionally responsive to
music through language than the TD group. It was hypothesized that WS individuals would describe their feelings with narratives using more emotional content than TD individuals. A t-test was performed to detect differences between the two groups. ELAN, a software program, was used to capture latency and duration of the musical activities. In addition, Reilly Evaluative Coding System (1998) was used to code narratives. The current study revealed that the WS group was quicker at initiating a song compared to the TD group. In addition, the WS group played music for a longer period of time compared to the TD group. Finally, the WS group utilized more social evaluative language in their narratives compared to the TD group. The present study confirms previous anecdotal reports from parents, that music is a domain that can be included as a relative strength in the WS population.

#158 1:00-2:30 pm

Grandparent and Grandchild Relationships Across Decades

Hayley Metz, Psychology
Shulamit Ritblatt, Child and Family Development

Children's picture books are often like their first textbooks. Through books children are exposed to a wide variety of cultures and lifestyles that can help them gain a more realistic picture of the world in which they live. Via these books, children are able to see human interactions, relationships, roles, physical characteristics between gender and age, as well as various emotions and attitudes. Young children's picture books were studied to examine the roles of grandparents and their relationships with their grandchildren. Commonalities and differences in the portrayal of the grandparents across cultures were analyzed. This is a continuing study that describes the images and characterizations of approximately 579 grandparents in 447 children's literature books published from as early as 1938 until 2008, including the depiction of various grandparent ethnicities around the world. Through numerous libraries and bookstores around California, these books were collected and coded by at least 2 different research raters from SDSU to determine what depictions were being made about grandparents and their roles. The significance of this study is to analyze these roles between the grandparent and the grandchild, and hypothesize that they are becoming more optimistic throughout each decade. Results indicated that grandparents images have been changing from a negative formal and distant role to a more positive one. Differences were found in the portrayal of grandparents across ethnic groups (Latino, Asian, Native American, Caucasians, and African American). This study is very important in looking at the images that children are exposed to at an early age and determining whether they are making a positive or negative impact.

#159 1:00-2:30 pm

Much Ado About Nothing: Mistaken Perceptions of Font Effects on Anxiety

Katrina Flores, Psychology
David Armor, Psychology

When practitioners administer self-report measures and symptom checklists, they must make a decision about which font they will use when printing their materials. With modern word processors, psychologists may choose to use familiar fonts (such as Times New Roman), or they may elect to use fonts that they believe will evoke certain responses. Previous research has indicated that individuals perceptions may be influenced by various stimuli, such as font. Research on consumer behavior, for example, has shown that consumers perceptions of particular brands may be altered by the characteristics of fonts used to advertise those products, with specific font characteristics instilling impressions about the product such as "prominent," "innovative," or "creative." However, no research to date has examined the influence of font on people's perceptions of themselves. Our aim was to understand the effects that font could have on people's beliefs about their own mood, specifically anxiety. Therefore, this experiment examined the actual and perceived effects of font on self-reported anxiety. Participants (281 San Diego State University students) completed a mood questionnaire printed in one of nine different fonts. Three of these fonts were hypothesized to be anxiety-inducing, three were hypothesized to be calming, and three were hypothesized to be neutral. As a between-subjects manipulation, half of the participants received a written warning about the possible effect of font, while the remaining participants did not. All participants were asked the same questions regarding their anxiety in everyday life situations, including school and relationships. Three follow-up questions assessed the extent to which participants believed that font had influenced their anxiety, but that font did not influence how anxious participants actually felt. These findings may have practical implications for individuals/organizations who attempt to influence the public/client mood. While individuals may believe they are being influenced, this experiment gives evidence that font did not have a real influence on individuals' mood.
Commuting Couples’ Concerns of Infidelity: Gender Differences
Trevor Cherr, Psychology
Shulamit Ritblatt, Child & Family Development

The Symbolic Interactionism Theory suggests that human interaction is based on the use and interpretation of symbols passed between each other. The concern between spouses about infidelity is often due to the way that each spouse interprets the actions of the other. Previous research indicates that while women are more concerned with emotional infidelity than men, men are more apprehensive about sexual infidelity (Cann, Mangum, & Wells, 2001). Men are more likely to commit acts of sexual infidelity and believe that it is justified (Cramer, Lipinski, Meteer, & Houska, 2008). This study addressed gender differences in relation to concerns about infidelity in commuting couples. For the purposes of this study, a commuter couple is defined as a relationship with 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. Fifty-seven participants (33 males, 24 females) completed a questionnaire based on their relationship to the commuting spouse. Those who were willing had the option of an in-depth interview follow-up. The questionnaires addressed the frequency of discussions regarding infidelity and the causes for these concerns, including the character and behavior patterns of the commuter spouse. It was predicted that there would be differences between how men and women viewed infidelity. The results supported this hypothesis by showing that gender differences did exist. These findings indicate that methods to address infidelity should account for the gender of the individuals involved. Future research on commuter couples should provide greater insight into these methods, taking into account these gender differences.

Coxackievirus B3 Infection Affects Neurogenesis and Hinders Normal Brain Development
Chelsea Ruller, Biology
Ralph Feuer, Biology

Coxackieviruses 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 coxackievirus 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 coxackievirus 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 3 day-old mice (intra-cranially) with a recombinant CVB3 expressing eGFP (107 pfu) and characterized brain pathology (by histology and immunofluorescence for neural markers, viral protein, and apoptosis) and wet weight measurements of surviving mice. Intriguingly, CVB3 may persist in the CNS as a low level, non-cytolytic infection. A significant decrease was seen in wet weight measurements of brain in both young (1, 2, and 5 days post-infection - pi) and older (10, 30, and 90 days pi) mice, as compared to mock-infected mice. We also observed an inverse relationship between the amount of infectious virus present during acute infection and brain wet weight measurements: the more infectious virus present, the lower the brain wet weight values. This relationship became progressively stronger over time. At 10 days pi, infectious virus was no longer present. Despite the lack of infectious virus, a significant decrease in brain wet weight values was observed up to 90 days pi, as compared to mock infected control mice. Furthermore, apoptosis was observed in the subventricular zone of infected mice, which might indicate the early loss of proliferating (Ki67+) neural stem cells. Hence, 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.

#163 1:45-3:15 pm

**Engineering a Vesicular Stomatitis Virus-based Protein Expression System**

Jimmy Guo, Biology
Jacques Perrault, Molecular Virology

We assembled a DNA clone containing the sequence of the prototype rhabdovirus, *vesicular stomatitis* virus (VSV), and the bacteriophage T7 RNA polymerase sequence from which infectious VSV can be derived. Infectious recombinant VSV-T7 grew to wild-type titer levels of 1.5 x 10^9 PFU/ml and was used to drive expression of a plasmid-encoded eGFP reporter gene under the control of a T7 promoter in Baby Hamster Kidney (BHK), Vero, HeLa, BSC 40, and Human Embryo Kidney 293 (HEK 293) cell lines. Experiments presented here compared qualitative expression level of GFP in each cell line and showed GFP expressions to be 70-80% of cells in BHK and Vero, 20-30% of cells in HEK 293, 1-5% of cells in HeLa and no expression observed in BSC 40 cells. The viral matrix (M) protein of VSV functions in virus assembly and inhibits host-directed gene expression. Previous experiments have shown that a mutation at amino acid position 51 of the M protein reduces shut off of host gene expression in cells. Therefore, we assembled another DNA clone of VSV-T7 by introducing a similar mutation in which amino acid 51 was deleted. Upon successful recovery of this new mutant (VSV-T7AM51) from DNA, we will determine whether we have improved the expression level of GFP in the above mentioned cell lines. So far, these results support the notion that this VSV-T7 system is useful for protein expression technologies, especially given its wide host range and relative ease in producing high virus titers and express reporter genes efficiently. We anticipate that M gene mutations that reduce or eliminate cytopathic effect in infected cells will further improve our novel viral protein expression vector.

#164 1:45-3:15 pm

**Expression of Human JCV Polymavirus VP1 Major Coat Protein**

Patricia Crivello, Biology
Tom Huxford, Biochemistry

The human polyoma JC virus is found to infect 70-90% of humans. Due to the cancer causing properties of the related polyoma virus SV40, human polyoma JC virus is suspected to be a cancer causing agent in human cells. The focus of this project is to clone, express, and purify the recombinant VP1 gene from *E. coli*. The purified protein will then be used in arrays to test for the presence of JCV in tumor samples. We performed PCR amplification of cDNA to produce copies of the VP1 gene isolated from the polyoma JC virus. The pET11a vector and PCR product were prepared with NdeI sites for ligation of the DNA product into the vector. We are currently preparing expression plasmids for starting materials. In the future, purification of the JCV VP1 protein from *E. coli* will be performed using an ion exchange column and size exclusion chromatography. Purification of JCV VP1 viral coat protein will provide a valuable reagent for investigation into causation of specific tumors.

#165 1:45-3:15 pm

**Characterizing the Growth Profile of a Mutant Vesicular Stomatitis Virus**

Gloria Felix, Biology
Jacques Perrault, Biology

*Vesicular stomatitis* virus (VSV) is an important prototype for the non-segmented, negative-sense RNA viruses, which contain the lethal Marburg, rabies and Ebola viruses. These viruses encode their own multifunctional RNA polymerase (L protein), which synthesizes viral transcripts and replicates the viral genome. Additionally, the polymerase modifies viral transcripts by adding a 5-guanine cap and methylating the cap, both of which are...
Merkel cell Polyoma virus is a newly discovered virus that is believed to contribute to pathogenesis of Merkel Cell Carcinoma. Cancer biologists believe that the virus contains a T antigen-like protein resembling that of the SV40 virus of African Green Monkeys. The MCV T antigen-like protein has been observed to form fusion to a tyrosine phosphatase receptor found in the human cells of infected individuals. It may function like SV40 large T antigen to block important cell functions such as cell arrest from the protein p53. In order to gain greater understanding into the structure and function of the MCV T antigen-like protein, we propose to express and purify milligram quantities of the protein using E. coli. We have prepared an MCV T antigen construct that contains a GST-fusion on the N-terminus. We will over express and purify the recombinant protein then run assays to test its interactions with known proteins to see what binding properties might arise. Our ultimate goal will be to crystallize and characterize the MCV T antigen-like protein using x-ray diffraction. This would tell us how similar this T antigen-like protein is to that of the SV40 T antigen and suggest mechanisms by which this protein contributes to the transformation of healthy cells to cancerous ones.

#166 1:45-3:15 pm

**Merkel Cell Polyoma Virus T-antigen-like Protein**

James Saleda, Chemistry
Tom Huxford, Chemistry and Biochemistry

Merkel cell Polyoma virus is a newly discovered virus that is essential for efficient translation of the transcript. Homologous cellular reactions are carried out in the nucleus, whereas VSV exclusively replicates in the cytoplasm. The critical role the polymerase plays in virus replication makes it an attractive target for antivirals; however, complete lack of the polymerase structure greatly hinders antiviral drug development against these viruses. A mutant virus (VSV-LEGFP) was generated by our lab using reverse genetic techniques to gain insight about polymerase structure and function. The mutant contains the EGFP reading frame inserted in a non-conserved region just upstream of the methylase domain of the L protein. This modification resulted in a functional, but temperature sensitive polymerase that fluoresces well in infected cells. Moreover, studies using BHK cells showed the virus has no apparent deficiency in its methylation activity and also displays an assortment of unique phenotypes such as a defect in polymerase packaging in virion particles. Previous studies with methylation deficient VSV mutant have suggested BHK cells specifically may compensate this defect thus, testing on other cell lines could confirm its methylation activity. It is also of interest to determine if the observed phenotypes occur in other cell lines as well. My early studies show that VSV-L EGFP grows robustly in HeLa cells thus allowing for more informative methylation studies on this cell line. I have also shown that this virus is temperature sensitive at a variety of multiplicities of infection in HeLa cells with a general one-log drop in titer at 37°C vs. 33°C. Additionally the polymerase fluoresces in this and other cell lines allowing us to track its intracellular localization using higher resolution microscopy techniques.

#167 1:45-3:15 pm

**In Situ Detection of Aquificales Via 16S rRNA In Situ Hybridization and Electron Microscopy**

Donn Van Deren, Jr., Biology
Richard 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 that considers 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 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 Aquificales in environmental samples by electron microscopy (EM). The goal of this study is to create a simple and effective method to prepare environmental samples for EM by using a modified appendorf tube plus membrane filter throughout the entire hybridization assay. Detection of hybridization is observed through the scanning electron microscope using streptavidin bound nanogold-silver. This methodology is currently in final development and we are in the process of analyzing hybridized environmental samples.

**Session B-1**

**Poster Presentation:**

**Microbial and Molecular Physiology**

Friday, February 27, 1:45 – 3:15 pm

**Location: Montezuma Hall South**

#168 1:45-3:15 pm

**Microbial Complexity in Dental Specimens of Patients with Periodontal Disease: A Pyrosequencing and Phylogenetic Approach.**

Lena van der Stap, Mathematics and Statistics
Roberta Gottlieb, Bioscience Center

Periodontal Disease (PD) is shown to be associated with risk of a number of systemic diseases—including atherosclerosis. Young adults who do not yet have heart disease can show signs of reduced endothelial function due to stress, smoking, or other...
diseases. The main hypothesis is that treating PD will normalize vascular endothelial function. The goal of the study is twofold: 1) to determine the relationship between gum disease and heart disease in young adults with PD by determining if they show early signs of endothelial dysfunction; 2) to characterize the oral microbial ecosystem in order to see if a highly diverse community or a few key species correlate more strongly with vascular dysfunction and PD. In addition, viruses represent an important and unknown component of the oral microbial community. For that reason it is important to characterize the viruses present in the community. Immunological response to periodontal pathogens were measured using a saliva-based diagnostic test in 10 individuals with gum disease. Immune response scores represent level of antibodies to virulence proteins associated with PD pathogens. Dental calculus samples from the same 10 individuals were analyzed for bacterial diversity following 16S rDNA isolation and subsequent 454 pyrosequencing (Roche). Preliminary results indicate a level of microbial complexity that requires a multivariate methodological approach. A total of 492 unique putative species were detected in the samples. Species richness varied from patient to patient with gum disease and was found to be independent of immune response score. Common aerobes Streptococcus and Neisseriales (associated with endocarditis), anaerobes Capnocytophaga, Porphylomonas, and Prevotellaceae, as well as Campylobacteraceae, Filifactor alocis, Propionibacterium, TM7-3, Suttonella ornithocola, and Actinobacterida, known to be linked to PD, were present in all or most samples. Fusobacterium was absent in patients with high immune response scores. Phylogenetic overlap among patients with both PD and signs of early atherosclerosis and non-overlap in patients with PD alone could point to bacterial species specifically involved in a causal relationship with cardiovascular disease, or a common cause of both diseases. In the future, phylogenetic overlap among patients with PD or vascular dysfunction is expected to confirm specific disease-associated species.

#169 1:45-3:15 pm
A Non-invasive Method for Measuring Contractility in Cardiocytes
David Torres Barba, Mathematics and Statistics
Paul Paolini, Biology

We are developing a non-invasive procedure for measuring contractile responses of both adult and neonatal mammalian cardiocytes. This method can be employed to quantify pharmacological effects of drugs on myocytes. Methods for quantifying neonatal cell contraction reported in the literature have required the use of elaborate equipment such as a proximity detector or an atomic force microscope (to measure the increase in cell elevation as a cardiocyte contracts), and typically interfere with simultaneous optical recording of cell signals such as the calcium transient that can be recorded using calcium-sensitive dyes like Fluo-3. Such contraction quantification methods are expensive due to the equipment needed. Our approach to contractile measurement is being developed with the goal to be a practical and relatively inexpensive method. In this method, digital video images are obtained using a CCD camera mounted on an inverted phase contrast microscope. The video images are later analyzed frame by frame using functions available in the Matlabs Image Processing Toolbox. Image enhancement and object recognition techniques are applied to the sequence of frames depicting a contracting myocyte. Our approach uses two different image processing procedures that allow us to produce a contractility record of both adult and neonatal cardiocytes. In our first procedure we analyze neonatal myocytes. In this analysis we center our attention on intracellular fine structure details by monitoring the area of small inclusions within the cell thought to be a result of the presence of protomyofibrils. Contraction curves generated from neonatal cells with our new method exhibit a very similar profile and time course to those produced by more sophisticated and expensive methods. Our second image processing procedure is an application that allows measurement of the adult cardiocytes area in each frame. Adult cardiac cells have a well defined approximately cylindrical morphology, and contractility can be measured by tracking the cells shortening, or the shortening of individual sarcomeres, the engines of shortening and force development within the cell. Application of our two dimensional quantification technique to the study of adult cardiocytes produces contraction vs. time records virtually identical in time course and shape to records obtained from traditional one dimensional, cell boundary tracking procedures. The contractility graphs created by the two image processing procedures are consistent with the expected results and graphs resulting from past studies performed on myocytes. This new non-invasive approach to contractile quantification will be useful in the analysis of the myocyte contractile dynamics in the presence of drugs.

#170 1:45-3:15 pm
Ubiquitin Carboxy Hydrolase L3: A Sensor of Protein Stability?
Mario Navarro, Chemistry
John Love, Chemistry

Background: Protein stability is an important factor in many cellular processes as well as for therapeutic applications. The accurate assessment of protein stability, as well as exploring new means to enhance protein stability is of keen interest. To achieve this we are exploring the properties of UCH-L3, a protease that cleaves proteins C-terminally fused to ubiquitin. Based on the hydrolysis rate we are exploring whether UCH-L3 is capable of differentiating between proteins with different thermal stabilities. Additionally, the yeast homologue of UCH-L3, YUH, was also investigated since it has a similar structure and both possess
ABSTRACTS

#170 1:45-3:15 pm
Role of BslA Adhesin in Bacillus anthracis Infection

Celia Ebrahimi, Biology
Kelly Doran, Biology

The blood-brain barrier (BBB), composed primarily of a specialized layer of brain microvascular endothelial cells (BMEC), separates the brain and its surrounding tissues from the circulating blood, tightly regulating the flow of nutrients and molecules and thereby maintaining the proper biochemical conditions for normal brain function. Yet despite its highly restrictive nature, certain bacterial pathogens are still able to penetrate the BBB and gain entry into the CNS leading to meningeal inflammation. Using a mouse model of hematogenous meningitis, our lab has shown that Bacillus anthracis, the causative agent of anthrax, is capable of penetrating the BBB in vivo and establishing the classic signs of meningitis, however the exact mechanism of this process is not known. To investigate the interactions of B. anthracis with the BBB, we utilize a human brain microvascular endothelial cell line, (hBMEC), which maintain the morphologic and functional characteristics of primary brain endothelium. I have shown in our in vitro BBB assay, that B. anthracis is able to adhere and invade hBMEC, and that this interaction is dependent on the presence of the surface layer anchored protein B. anthracis S-layer protein A (BslA). Since our in vitro results suggested a role for BslA in BBB penetration, I next corroborated our in vitro findings in our in vivo model of anthrax meningitis. Our results showed that mice injected with the Δ mutant strain exhibited a significant decrease in the frequency of brain infection compared to the wild-type parental strain. Furthermore, B. anthracis outcompeted the Δ bslA mutant strain when both strains were injected in equal quantities in mice. These findings demonstrate a role for BslA in the pathogenesis of anthrax meningitis and BBB penetration.

#171 1:45-3:15 pm
A Novel Population of Myeloid Cells Responding to Coxsackievirus Infection in the Neonatal CNS Express a Neural Stem Cell Marker

Jenna Tabor-Godwin, Biology
Ralph Feuer, Biology

Enterovirus infection in newborn infants is a significant cause of aseptic meningitis and encephalitis. Using a neonatal mouse model, we previously determined that coxsackievirus B3 (CVB3) preferentially targets proliferating neural stem cells located in the subventricular zone within 24 hours after infection. At later time points, immature neuroblasts, and eventually mature neurons, were infected as determined by expression of high levels of viral protein. Here, we show that blood-derived mononuclear cells were rapidly recruited to the CNS within 12 hours after infection with CVB3. These cells displayed a myeloid-like morphology and were highly susceptible to infection during their recruitment into the CNS. Kinetic data from serial immunofluorescence images captured the extravasation of infected myeloid cells through the choroid plexus epithelium, and their eventual penetration into the parenchyma of the brain. Prior to their migration through the ependymal cell layer (ECL), a subset of these infected myeloid cells expressed detectable levels of nestin, a marker for neural stem cells. Nestin+ myeloid cells infected with CVB3 underwent diapedesis through the ECL and revealed distinct morphological characteristics typical of type B neural stem cells. The recruitment of these novel myeloid cells may be specifically set in motion by chemokine induction in the CNS following early CVB3 infection. In order to investigate this phenomenon, we performed an Illumina BeadArray Whole Mouse Genome analysis of the neonatal brain following infection with two contrasting RNA viruses in hopes of identifying novel chemokines and cytokines induced specifically by CVB3 infection. We propose that CVB3 infection may lead to the recruitment of these blood-derived myeloid cells into the CNS, thereby contributing to the repair process during virus-mediated pathology. In turn, the proliferative and metabolic status of these recruited myeloid cells may render them attractive targets for CVB3 infection. Moreover, the migratory ability of myeloid cells may point to a productive method of virus dissemination in the CNS.

#172 1:45-3:15 pm
Role of BslA Adhesin in Bacillus anthracis Infection

Celia Ebrahimi, Biology
Kelly Doran, Biology

The blood-brain barrier (BBB), composed primarily of a specialized layer of brain microvascular endothelial cells (BMEC), separates the brain and its surrounding tissues from the circulating blood, tightly regulating the flow of nutrients and molecules and thereby maintaining the proper biochemical conditions for normal brain function. Yet despite its highly restrictive nature, certain bacterial pathogens are still able to penetrate the BBB and gain entry into the CNS leading to meningeal inflammation. Using a mouse model of hematogenous meningitis, our lab has shown that Bacillus anthracis, the causative agent of anthrax, is capable of penetrating the BBB in vivo and establishing the classic signs of meningitis, however the exact mechanism of this process is not known. To investigate the interactions of B. anthracis with the BBB, we utilize a human brain microvascular endothelial cell line, (hBMEC), which maintain the morphologic and functional characteristics of primary brain endothelium. I have shown in our in vitro BBB assay, that B. anthracis is able to adhere and invade hBMEC, and that this interaction is dependent on the presence of the surface layer anchored protein B. anthracis S-layer protein A (BslA). Since our in vitro results suggested a role for BslA in BBB penetration, I next corroborated our in vitro findings in our in vivo model of anthrax meningitis. Our results showed that mice injected with the Δ mutant strain exhibited a significant decrease in the frequency of brain infection compared to the wild-type parental strain. Furthermore, B. anthracis outcompeted the Δ bslA mutant strain when both strains were injected in equal quantities in mice. These findings demonstrate a role for BslA in the pathogenesis of anthrax meningitis and BBB penetration.
#173 1:45-3:15 pm  
**Designing a Protein Based Inhibitor of βAmyloid Fibrils**  
Aditi Apte, Biology  
John Love, Biology

Aberrant protein aggregation has been identified as the molecular basis for several neurodegenerative diseases such as Alzheimer’s and Parkinson’s disease. Much attention has been focused on the development of molecules that can interact with these proteins and prevent them from aggregating and forming fibers. The amyloid β (Aβ) peptide is a well characterized peptide that readily forms the amyloid fibrils that make up the plaques associated with Alzheimer’s disease. The approach we are employing entails the design of a protein-based inhibitor of Aβ fibril formation. Previously we successfully blocked the self association of a small test protein (the β1 domain of streptococcal protein G – Gβ1) that proved to possess amyloid-like fibril morphology. The model system entailed the engineering of two variants of Gβ1 that were designed to form a heterodimer. Of the two variants, one formed amyloid-like fibrils when incubated by itself but not when incubated in the presence of the designed binding partner. Thus this system proved to be an excellent model of protein-based fibril inhibition. We hypothesize that a newly designed Gβ1 variant will bind the Aβ peptide and stabilize the native β-helical state of the peptide and prevent it from self-associating into amyloid fibrils. Our approach incorporates both computational and experimental screening methods. The computational methods utilize a protein docking algorithm in combination with protein design algorithms to generate Gβ1 variants that bind Aβ. The experimental screening includes an *in vivo* E. coli cell-based assays to select for suitable binding partners. Finally, the ability of selected Gβ1 variants to inhibit fibril formation will be assessed using standard in vitro methods employed to study fiber formation/inhibition: Thioflavin T (ThT) assay and Transmission Electron Microscopy (TEM). In addition to the designed target interactions we are also working to develop an expression system that will produce relatively high yields of Aβ peptide.

#174 1:45-3:15 pm  
**Assessing the Potential Correlation Between Protein Stability and Function**  
Youly Ly, Chemistry  
John Love, Chemistry

The family of proteins known as the High Mobility Group (HMG) is subdivided into two classes. One class consists of proteins that are partially disordered free in solution, bind DNA based on sequence, and bend linear DNA through significant angles. Lymphoid Enhancer Binding Factor-1 (LEF-1), which bends DNA through the greatest angle, is a member of the latter class and may be the most disordered member of this group. The disordered observed for the free LEF-1 causes NMR line broadening and exchange which results in only 58 out of a potential 86 [1H, 15N] HSQC peaks. This behavior raises the following questions. Why is the LEF-1 domain so disordered prior to binding DNA? Is the disorder necessary for the protein to bind and bend DNA? In an attempt to answer these questions we pose an additional question. Can stability be introduced into the LEF-1 protein? Our investigation includes an attempt to introduce stability into LEF-1 and then ascertain a potential correlation between stability and function. Our attempt to introduce stability into LEF-1 incorporates computational methods and sequence homology comparisons with the HMG-1 family. The effect of all mutation(s) on the overall stability and thermodynamics of LEF-1 is assessed with circular dichroism (CD) and NMR spectroscopy. Functional analysis will be performed on variants found to possess increased stability. The ability to bind and bend the DNA will be assessed with mobility shift assays and isothermal titration calorimetry.

#175 1:45-3:15 pm  
**Using Drosophila as the Model System for the Therapeutic Approach of the Human Disease IBM-3**  
Yang Wang, Biology  
Sanford Bernstein, Biology

Point mutations within myosin, the molecular motor of muscle, can lead to myosin depletion or aggregation. One human muscle disease, hereditary inclusion-body myopathy type III (IBM-3), is caused by a single amino acid Glu706Lys substitution in the SH1 helix of the myosin head. Previous efforts at understanding the molecular mechanism of IBM-3 had limited success. In this study, we use the fruit fly *Drosophila* as the model system to study this disease. We constructed the single amino acid mutant gene and expressed it in place of wild-type myosin heavy chains by germline transformation and crossing into a line that does not express myosin in its flight muscle. We thus obtained the homozygous mutant lines in myosin null background. These homzygous flies completely lack flight abilities, and their jump abilities are also greatly reduced. Our ongoing research includes the analysis of flight and jump muscles through confocal and electron microscopy. Also, biochemical and biophysical measurements are planned on myosin isolated from these flies. These include ATPase-actin binding assays and in vitro motility assays. Future research will involve testing if the myopathy can be ameliorated by over-expression of alphaB-crystallin, Hsc70, Hsp90, and UNC-45, all known to aid in myosin folding and/or protection.
ABSTRACTS

from stress. Overall, the significance of this research is that by using genetic approaches to study the molecular mechanism of IBM-3, we will be able to identify therapeutic agents for treating this myopathy and possibly other myosin-based inclusion body diseases.

#176 1:45-3:15 pm
**Microbial Diversity in Steam Vent Sublimates**
Courtney Benson, Biology
Richard Bizzoco, Microbiology

Fumaroles, commonly called steam vents, contain diverse microbial communities. In fumaroles, water is heated below by magma and boils to steam which reaches the surface. In this study, steam vent sublimates (chemical deposits carried by steam) are analyzed for archaeal and bacterial DNA from Hawaii Volcanoes National Park, Yellowstone National Park, and Lassen Volcanic National Park. From previous studies, it was found that organisms are present in steam. As steam rises, it hits the subsurface and deposits microbes on the sediment, defining the microbiology of steam vent sublimates. Although geology has been studied in steam vents, little is known about the microbial diversity of steam sublimates. The main goal of this project is to identify the effects of environmental factors on microbial diversity. The environmental factors that we are exploring are chemistry (sulfur, non-sulfur, and iron), temperature and pH. We also plan to use culture methods to isolate bacterial and archaeal DNA; develop and use advanced and unique environmental DNA extraction methods developed to purify DNA from volcanic samples sufficient for PCR; and finally, using the environmental DNA to analyze phylogenetic relationships. The chemistry of the sample sites has been analyzed, while nutrient analysis remains to be completed. There are several hypotheses that we formed during this study: 1) chemistry is the main factor affecting diversity, followed by temperature and pH; 2) geographic location will affect the structure of microbial communities; and 3) organisms present will have the highest upper temperature limit of all known continental isolates and will be Archaea. Two approaches were used in this study to identify archaea and bacteria: cultivation methods and DNA extraction from environmental samples using the Mo Bio Power Soil Kit (Mo Bio, Solana Beach, CA). After cultures have been grown, the DNA is extracted by lysozyme; the purified DNA can be amplified by polymerase chain reaction (PCR), and the amplified DNA is sequenced. Following the bead beating protocol, the purified DNA is amplified by PCR and cloning will be completed. After all sequences have been identified, a phylogenetic tree is created for each site and analyzed. Through the phylogenetic trees, correlation can be made with microbial diversity and chemistry, temperature, pH, and geographic location to determine which of the factors is most significant and which hypotheses are supported or rejected.

Session B-1
Poster Presentation: Analytical Chemistry I
Friday, February 27, 2:30 – 4:00 pm
Location: Montezuma Hall South

#177 2:30-4:00 pm
**Multi-photon Laser Wave-mixing Analysis of Proteins in Single Cells**
Donna Sirenski, Chemistry
William Tong, Chemistry

Background: Single cells with diameters on the order of 50-100 μm have volumes in the range of 60-120 pL. Few direct-probe analytical tools are available to facilitate the analysis of proteins in a single cell. Laser wave mixing is presented as an ultrasensitive optical absorption-based detection method for profiling cellular proteins and identifying specific proteins within a single cell. Wave mixing offers important advantages including enhanced sensitivity, small probe volume, small analyte requirement and high spatial resolution suitable for cellular protein analyses. Method: When two coherent beams are mixed in the presence of an absorbing analyte, dynamic gratings are produced which divert incoming photons in the form of coherent laser-like signal beams. Hence, the analytical signal can be collected with virtually 100% collection efficiency and with little or no optical background noise. The signal has a cubic dependence on laser power and a quadratic dependence on analyte concentration, and hence, it is especially suitable for monitoring cellular protein concentrations. Results: Proteins are labeled with a non-specific chromophore and separated by molecular weight using capillary sieving electrophoresis. Multiple proteins within the individual cell are separated and detected using a 488-nm argon ion laser. The molecular weight of each protein detected can be estimated and a profile of the proteins present in the cell can be revealed. Conclusions: Small wave-mixing probe volumes (nanoliters to picoliters) allow sensitive absorption detection of proteins within a single cell, and wave mixing is inherently suitable as a detector for capillary electrophoresis. Acknowledgments: We gratefully acknowledge support of this work by National Institute of General Medical Sciences (R01), National Institutes of Health, National Science Foundation, U.S. Department of Defense (CCAT), Lockheed Martin, Varian, Beckman, CSUPERB and Johnson & Johnson
Iron is the 4th most abundant element on earth’s crust, yet in oxic aquatic environments it remains largely insoluble and bio-unavailable. Since iron is an essential element for the vast majority of life on earth, microorganisms have developed methods to solubilize and take it up from the environment. For example, many bacterial species release low-molecular weight compounds with extremely high affinity for iron, known as siderophores, to bind exogenous iron and facilitate its uptake. Under oceanic conditions certain bacterial species, including Marinobacter sp. DG893, and certain phytoplankton are hypothesized to interact in a “symbiotic-like” relationship (1). The close association between specific strains of Marinobacter and toxic, blooming forming dinoflagellates makes limited micronutrient associated proteins of particular interest. Specifically iron’s role in regulation and homeostasis in bacteria and algae are to be investigated. Quantitative real time PCR and proteomics studies are utilized to examine gene and protein expression variations in DG893 under iron deficient and sufficient conditions in the presence and absence of their dinoflagellate partners.

In order to better understand the hydrogen atom dynamics in a class of organometallic complexes, we investigated the H atom migration between carbene and hydride structures in organometallic iridium and rhodium complexes using computational methods. Our goal is to minimize the energy barrier between hydride and carbene structures such that both may be observable in an equilibrium mixture. Geometry optimizations for the carbene and hydride structures were carried out using HF, B3LYP, BLYP, Stuttgart RSC 1997 ECP, and Kirk Peterson’s basis for rhodium at the dz and tz levels. The results at the B3LYP/DFT and Kirk Peterson’s basis at the dz and tz level for the rhodium structures agree to less than 0.9 kcal/mol that the energy difference between the carbene and hydride structures is too large for the structures to coexist at equilibrium. Optimizations for the iridium complexes also showed a large energy barrier between the carbene and hydride structures. The structures were modified in three locations: first by removal of the methylene spacers, second by the addition of an electron withdrawing or releasing group, and third by the addition of a benzene or substituted benzene in the place of the t-butyl. The complexes displayed similar trends after these modifications. Removal of the methylene spacers and the addition of Me2N or O- caused the greatest reduction in the energy barrier. The energy differences were further reduced through consideration of frequency calculation data. The low energy differences of the modified structures indicate both may be observable in an equilibrium mixture.
a hydroxyxcarboxylic ester. Proton and Lithium-7 NMRs, and TLC characterize the final product, purity, and determine if other by-products have formed.

#182 2:30-4:00 pm

A Method of Controlling Morphology of Colloid Silver
Tung Mai, Chemistry
David Pullman, Chemistry

Controlling the morphology and other properties of silver nanoparticles has received intense current interest not only for fundamental scientific reasons but also because of their important applications in medicine and optical devices. We found that a solution of silver nanoparticles can change color by exposing it to different colors of light. We accomplished this by placing solutions of the nanoparticles in a customized photo-excitation chamber containing LEDs that can emit narrow band of wavelengths with a high intensity. For example, a silver nanoparticle solution synthesized by adding sodium borohydride to a mixture of silver nitrate and sodium citrate is yellow, with its visible absorption center at 400 nm. Its color will change to green or pink after exposure to green light or blue light, respectively. Examining these solutions by UV-visible spectroscopy, we noticed that there was an additional peak in their spectra beside the peak at 400 nm. In the green silver nanoparticles solutions spectrum, there were peaks at about 400 nm and about 625-650 nm while in the pink silver nanoparticles solutions spectrum, there were peaks at about 400 nm and 525 nm. Interestingly, red light has no effect on the initial yellow solution. However, exposure of the green solution will result in a nearly colorless solution, which has an absorbance at about 800 nm. The shift in wavelength is due to a change in size and shape of the nanoparticles, as shown by Transmission Electron Microscope images. Based on our results, we can hypothesize that the wavelength can be shifted further by exposing to infrared radiation. Successfully controlling the morphology of silver nanoparticles will not only aid in revealing the mechanism of formation of nanoparticles silver but also open a door to many potential applications of silver nanoparticles in future.

#183 2:30-4:00 pm

Segmentation of an Aqueous Sample Stream with Perfluorocarbon Liquid in a Microfluidic Device
Devin Wakefield, Chemistry
Christopher Harrison, Chemistry

The segmentation of analyte streams into nanofluidic droplets for temporal analysis has become more prevalent in the sampling and analysis of biological systems. The ability to fraction aqueous sample streams into nanoliter-sized droplets with an immiscible perfluorocarbon (PFC) liquid prevents the loss of analytes and sample diffusion. This technique also provides the possibility for high temporal resolution of the analyte stream. However, a limitation remains in the analysis of the droplet components; no suitable separation technique is capable of incorporating a PFC/sample droplet flow. This work describes preliminary instrumentation in the development of an injection system to sample the aqueous droplets from a segmented analyte stream. Two approaches to generating the segmented flow stream have been investigated. For our first injection system design, prefabricated tubing and microfluidic connections were used in the construction of a tee. This arrangement allowed for aqueous solution to flow into the base of the tee as PFC liquid passed through the cross arm and segmented the aqueous solution into droplets. Moderate control over droplet size and spacing was obtained through various flow rates and tubing modifications. Alternatively, the second method to producing segmented flow is accomplished through the fabrication of a similar tee design in an elastomeric material, poly(dimethylsiloxane) (PDMS). Our in house, non-photolithographic fabrication processes for PDMS devices have proved to be inexpensive, rapid, and effective. Capillary tubing, super glue, and glass plates are used to prepare master templates for the micro-channel designs in PDMS. The PDMS, poured over the template and cured on a hot plate, produces thin, patterned layers that are sealed together in order to realize a precise network of micro-channel paths. Compared to the prefabricated tubing system, our microfluidic devices in PDMS have significant advantages. The transparent properties, small and portable sizes, and ease of which micro-channel dimensions can be manipulated facilitate the analysis and optimization of the devices. Most importantly, the PDMS devices have enabled better control of fluid segmentation, resulting in smaller, reproducible droplet formation and spacing.

#184 2:30-4:00 pm

Very Strong Redox-Dependent Hydrogen Bonding Between a bis-Dimethylaminophenylurea and a Cyclic Diamide
Karina Kangas, Chemistry
Diane Smith, Chemistry

It has been shown that it is possible to selectively and significantly perturb the strength of hydrogen bonding between organic molecules using electrochemistry. Although both reduction and oxidation reactions have been used, reductions have generally proven more successful. In this paper we report studies based on oxidation with the electroactive urea bis-dimethylaminophenyl derivative, 1, which can undergo two reversible oxidations forming a radical cation on both phenyl rings of the urea. An electrolyte with very large anion, NBu4B(C6F5)4, resulted in well-behaved cyclic voltammetry. Interestingly, the first CV wave is broad, but the second wave is much sharper. We have interpreted the first
An important specificity of our work was to compare the extent to which an inclusive American identity would emerge from relatively automatic responses (implicit) and from more controllable responses (explicit). In Study 1, participants (N = 63) completed a Brief Implicit Association Test (Sriram & Greenwald, 2008) assessing the degree to which the concept American was associated with European Americans, African Americans, Asian Americans, and Latino Americans. Next, they reported the extent to which they viewed these ethnic groups as American. At the implicit level, we found weaker evidence for the American = White effect than in previous research. More precisely, the American identity was associated with European and African Americans to the same extent and with Asian and Latino Americans to a lesser extent. At the explicit level, European Americans were seen as being more American than all three other ethnic groups. In Study 2 (N = 71), implicit associations between ethnic groups and the concept American were assessed using the Go/No-go Association Task (Nosek & Banaji, 2001). At the implicit level, we found no evidence for the American = White effect, and African Americans as a group were seen as most strongly associated with the concept American. In contrast, explicit associations yielded a pattern consistent with the American = White effect. In sum, these findings illustrate that multiculturalism can mitigate a robust implicit propensity to equate being American with being White, even when participants explicitly consider the true Americans to be of European descent. The present studies are an important step toward identifying how a multicultural mindset can be fostered, thereby leading to a greater inclusion of people from different ethnic or cultural backgrounds in the American identity.

Session B-1
Poster Presentation: Multiculturalism
Friday, February 27, 2:30 – 4:00 pm
Location: Montezuma Hall South

#185 2:30-4:00 pm
When Implicit Associations are More Aligned with Multiculturalism than Explicit Associations
Thanhvan Huynh, Psychology
Thierry Devos, Psychology

Recent research shows that European Americans as a group are more readily associated with the concept American than ethnic minorities (Devos & Banaji, 2005). Two studies were conducted to determine whether fostering a multicultural mindset would reduce this American = White effect. An important specificity of our work was to compare the extent to which an inclusive American identity would emerge from relatively automatic responses (implicit) and from more controllable responses (explicit). In Study 1, participants (N = 63) completed a Brief Implicit Association Test (Sriram & Greenwald, 2008) assessing the degree to which the concept American was associated with European Americans, African Americans, Asian Americans, and Latino Americans. Next, they reported the extent to which they viewed these ethnic groups as American. At the implicit level, we found weaker evidence for the American = White effect than in previous research. More precisely, the American identity was associated with European and African Americans to the same extent and with Asian and Latino Americans to a lesser extent. At the explicit level, European Americans were seen as being more American than all three other ethnic groups. In Study 2 (N = 71), implicit associations between ethnic groups and the concept American were assessed using the Go/No-go Association Task (Nosek & Banaji, 2001). At the implicit level, we found no evidence for the American = White effect, and African Americans as a group were seen as most strongly associated with the concept American. In contrast, explicit associations yielded a pattern consistent with the American = White effect. In sum, these findings illustrate that multiculturalism can mitigate a robust implicit propensity to equate being American with being White, even when participants explicitly consider the true Americans to be of European descent. The present studies are an important step toward identifying how a multicultural mindset can be fostered, thereby leading to a greater inclusion of people from different ethnic or cultural backgrounds in the American identity.

#186 2:30-4:00 pm
Chicano Park
Adela Lua, Anthropology
Yisidro Ortiz, Chicana & Chicano Studies

This research is an exploratory investigation of the social life, role, and benefits of Chicano Park, a world renowned area for its cultural murals, located in the community of San Diego. Data on the historical origins and current usage will be employed to discover aspects of the social life of the park. Data are to be obtained using a mixed-method approach involving three sources: onsite, ethnographic, participant observations; a survey of park users; oral history interviews with selected members of the Chicano Park Steering Committee (the committee that oversees the planning and development of the park). Chicano Park was chosen because it is one of the most significant legacies of the Chicano Power Movement in San Diego. The literature on Chicano Park is minimal; the potential benefits of this study would include contributions to the knowledge about this historical, cultural landmark.
Cross-cultural Differences in Aggression in a Sport Context
Kiersten Janjigian, Psychology
Richard Graf, Psychology

The manner in which culture affects aggression in a sport context is important in today’s society, especially considering the many different sports in which athletes from around the world compete. Many aspects of culture, such as communication style, norms, and language, may influence the amount and type of aggression used in sport as well as the manner in which aggression is perceived. The sport of soccer provides a good mode for analyzing how culture may affect aggression. Soccer is one of the most popular sports in the world (FIFA, 2008). In the last FIFA World Cup, in 2006, over 190 national teams competed in qualifying tournaments to place in the finals, and over three million people attended the games (FIFA, 2008). Thus, soccer is the one sport with which most countries in the world can identify, and it is often a sport that is charged with culture and emotion from both the spectators and players. As a result, cultural influences may play a significant role in how players behave and aggress on the field. The various influences by which players are affected, including their country’s politics, language, customs, and religion, as well as team politics, norms, and attitudes, all constitute what can be called a players culture. Players of the same country will have very similar cultures. This leads to questions about the manner in which culture influences not only players, but also coaches, referees, and behavioral aspects of the game, especially aggression (Goldblatt, 2006). The purpose of this investigation is to understand further how cross-cultural differences in communication, morals, norms, expectancies, and popularity of soccer in certain cultures may affect the way soccer players use and perceive aggression during game play. It is hypothesized that culture affects aggression in soccer. Theories to explain this relationship will be offered. Although still in preliminary stages, a comprehensive literature review will be presented, to include information about cross-cultural attitudes, communication, styles of aggression, morals, etc., as well as information about the game of soccer. Case studies of specific players may also be used to analyze how culture may affect the use of aggression in a given game situation.
#189 2:30-4:00 pm

**Sexual Satisfaction among Mexican American Couples in the First Year of Marriage**

Elsa Carrasco, Psychology

Surprisingly limited research exists investigating aspects of Mexican American marital relationships, including sexuality. Nevertheless, sexual satisfaction in marital relationships is important, as it is related to marital satisfaction, which itself is related to marital stability (Veroff, Douvan, & Hatchett, 1995; Yeh, Lorenz, Wickrama, Conger, & Elder, 2006). Furthermore, the relationship of mental health functioning of marriage partners to sexual satisfaction in this group is little understood. The purpose of this preliminary study with a sample of 75 Mexican American couples in their first year of marriage recruited from the community is to determine 1) the extent of sexual satisfaction in these couples and whether this differs between women and men and 2) how depression and anxiety are related to sexual satisfaction. Because the mental distress of one partner is known to influence the other partner, this study investigates both partner and actor effects of depression and anxiety on sexual satisfaction. Analyses are currently underway, but sexual satisfaction is expected to be high: women are expected to show less sexual satisfaction than men; and depression and anxiety are expected to be positively related to sexual distress in both women and men.

#191 2:30-4:00 pm

**Effects of Youthful Indiscretions on Perceptions of Hispanic and Caucasian College Students**

Sara E. Andrews, Psychology
David Armor, Psychology

How relevant are past mistakes (or youthful indiscretions) in the evaluation of Hispanic and Caucasian college students by peers? To address this question, participants (238 college students) were randomly assigned to one of 24 different conditions in which they were asked to evaluate a character description of either Josh Williams, an 18-year-old Caucasian male student, or Javier Hernandez, an 18-year-old Hispanic male student. Each description varied according to three independent variables: (A) ethnicity: Hispanic and Caucasian, (B) indiscretion type: DUI, pregnancy, drug use, stealing, and (C) indiscretion level: confirmed, suspected, control. It was hypothesized that characters who were described as having a confirmed indiscretion would be judged negatively in comparison to those with either a suspected indiscretion, or no indiscretion at all. Based on previous research on ethnic prejudice, we also hypothesized that the Hispanic character rather than the Caucasian character would be judged more harshly in the context of a confirmed mistake. In addition, it was hypothesized that our Hispanic character would bear a greater burden of suspicion in the context of a suspected indiscretion than our Caucasian character. A 2x3x4 ANOVA revealed a main effect for level, F(2, 212) = 21.04, p < .01, and follow-up t-test supported the hypothesis that confirmed indiscretions were judged as significantly worse than suspected indiscretions, and that suspected indiscretions were judged as significantly worse than no indiscretion. However, there was no main effect of character ethnicity, F(1,212) = 1.36, p = .25. Overall, we found participants in our sample were as likely to forgive the Hispanic character in our description for a past indiscretion as the Caucasian character. Moreover, they were more likely to forgive a character who was suspected rather than caught for a given indiscretion, despite favoring those with no indiscretions. In conclusion, while study participants did not favor one ethnicity when evaluating student descriptions of Hispanic and Caucasian males, they did make a clear distinction between overall indiscretion levels, giving the most positive ratings to those with no indiscretion, and the most negative to those with a confirmed indiscretion.

Poster Presentation:
Speech Language, and Hearing Sciences
Friday, February 27, 2:30 – 4:00 pm
Location: Montezuma Hall South

#192 2:30-4:00 pm

**A Comparison of Hearing Aid Technology for Speech Communication over the Telephone**

Lindsey McMahan, Speech, Language, and Hearing Sciences
Carol Mackersie, Speech, Language and Hearing Sciences

Objectives. The purpose of this study was to determine the benefit of telephone technologies for listeners with hearing loss. Design. Existing data from the Auditory Research Lab at San Diego State University was used to compare speech intelligibility over a landline and a cell phone. Scores were measured in quiet and in background noise, when unaided, using an acoustic microphone program, and using a telecoil program. Data from twelve participants were used. Participants had pure-tone averages between 30 and 65 dB HL and hearing aids whose telecoil settings were no more than 3 dB below the microphone setting. All participants had been fit with hearing aids using the NAL-NL1 hearing aid prescription. Results. Analysis of variance results showed significantly higher scores in aided conditions (acoustic and telecoil) on both the landline and cell phone as compared to the unaided conditions. However, there was no significant difference between scores for the telecoil and acoustic hearing aid settings. The cell phone allowed for better speech recognition in noise conditions, while the landline provided greater benefit in quiet conditions. It was determined that the cell phone was enhancing the signal providing a 1.6 dB improvement in the signal-to-noise ratio.
ratio. Conclusions. People with hearing loss have more success with speech recognition in telephone communication when using amplification, through acoustic or electromagnetic coupling, than with no amplification at all. Training on positioning may improve patients success with telephone communication. Bluetooth and other wireless coupling methods may also be beneficial.

#193 2:30-4:00 pm

Role of Neighborhood Density and Phonotactic Probability in Bilingual Speech Production

Skott Freedman, Speech, Language, and Hearing Sciences
Jessica Barlow, Speech, Language, and Hearing Sciences

The present study investigated the influence of neighborhood density (ND) and phonotactic probability (PP) on bilingual speech production using whole-word production measures (Ingram, 2002). Bunta, Davidovich, and Ingram (2006) found support for what they termed the target-driven hypothesis, which predicts that the phonological complexity of a bilingual childs words may vary between languages, but overall approximation should remain similar. The goals of the present study were to test this hypothesis in bilinguals with an untested language, Spanish, while also examining the potential influence of PP and ND on whole-word production. Fifteen typically developing children (M = 4:11 years; months), SD = 1:11, range: 2:3 - 8:4) from the San Diego area were recruited to participate. A picture-naming task was administered to sample each childs production of consonants and vowels in English and Spanish in multiple contexts. Words were elicited spontaneously whenever possible; otherwise, a delayed imitation was obtained. For the purpose of the present study, we considered the childrens productions on 50-100 items whose lexical properties varied in low and high ND; and low and high PP. Two whole-word production measures were utilized: the phonological mean length of utterance (PMLU), and the proportion of whole-word proximity (PWP). Briefly, PMLU measures the number of segments and correct consonants in a childs productions, thereby providing a measure of the childs overall phonological complexity of a word. Next, PWP captures the degree of whole-word proximity and is considered a measure of the childs overall word intelligibility. In terms of PMLU, findings revealed greater phonological complexity in Spanish versus English words with low PP and low ND; however, consistent with the target-driven hypothesis, no differences emerged between English and Spanish PWP. An additional comparison of bilinguals with age-matched monolinguals revealed no performance differences. These results suggest that although bilingual children can vary in terms of phonological complexity between languages, they nevertheless rise up to the challenge of maintaining similar intelligibility. Additionally, given that no differences were observed between bilinguals and monolinguals, the two populations do not appear to treat sublexical and lexical information differently in picture-naming tasks despite potentially different phonological systems.

#194 2:30-4:00 pm

Complex Syntax as A Diagnostic Indicator for AAE Speaking Children with SLI

Sarah Freitag, Speech, Language, and Hearing Sciences
Sonja Pruitt, Speech, Language and Hearing Sciences

Research shows that when current standardized assessment tools are used with children using nonmainstreamed dialects, over- and/or under- diagnosis of Specific Language Impairment (SLI) occurs. This is partially due to pattern similarities between nonmainstreamed dialectal use and SLI. In an effort to remedy the overlap between language profiles of children who speak a nonmainstream dialect and those diagnosed with SLI, complex syntax measures have been advocated. Since complex syntax is analyzed at the clause level, it remains unaffected by morphosyntactic dialectal patterns. However, little research has been done determining whether complex syntax measures are sensitive enough to diagnose clinical impairments. The purpose of the study was to detail the frequency and types of complex syntax produced by preschoolers who speak African American English (AAE) and the relationship that exists between complex syntax, socioeconomic status, age and clinical status. Four groups of AAE speakers participated: 15 low-income 6-year-olds (LSES); 15 middle-income 6-year-olds serving as typically-developing, age-matched controls (AM); 15 middle-income 5-year-olds serving as typically-developing, vocabulary-matched controls (LM); and 8 low to middle-income 6-year-olds diagnosed with Specific Language Impairment (SLI). LSES was defined as maternal education of less than 12 years and presence of depressed language test scores without diagnosis of impairment. MSES was defined as maternal education of at least two years of college and age-appropriate language test scores. SLI status was determined by receipt of services by a speech language therapist and performance on a battery of tests. Dialect status was confirmed through blind listener judgments. Data for complex syntax analysis were generated from language samples collected during adult-child play sessions, and coding procedures followed the guidelines set forth by Jackson and Roberts (2001). Each unique type of complex syntax was produced by at least one child and while there were differences between the groups they proved to not be statistically significant. Correlational analyses revealed that the childrens use of complex syntax was not related to their SES, age, or clinical status. In summary, the results suggest that childrens use of complex syntax was not impacted by their SES, age, or clinical status. As such, these measures of complex syntax usage did not differentiate typically developing children from those diagnosed with SLI.
**#195 2:30-4:00 pm**

*Idiomatic Language Comprehension in Preadolescents with Autism***

*Idiomatic Language Comprehension in Preadolescents with Autism*

Stephanie Hubbell, Speech, Language, and Hearing Sciences

Tracey Love-Geffen, Speech, Language, and Hearing Sciences

The purpose of the current study is to explore the ability of pre-adolescent autistics to extract figurative meaning from idiomatic expressions in real-time, even though research has demonstrated an inability to comprehend idioms in off-line measures (Nippold, 1998). Idiomatic expressions (e.g. hit the hay) can be interpreted literally (limited to exactly what an expression says; /hit the hay/ = physically punching a haystack) or figuratively (where the interpretation is unrelated to the specific words contained within the expression itself, thus generating a second meaning; /hit the hay/ = going to bed). Existing literature has revealed that unlike their unimpaired peers, preadolescents with autism consciously interpret idioms literally, not figuratively. However, little research has been performed on this groups’ real time processing abilities. Forty idioms will be presented to fifteen 8-12 year olds with autism and an age-matched unimpaired population using a technique allowing for moment-by-moment processing of sentences (cross-modal-lexical-priming, Swinney '79). Idiomatic expressions embedded within sentences and present aurally over headphones (along with filler sentences). While listening to these sentences, participants make a secondary yes/no lexical decision to visual letter strings presented at the offset of the idiom. These probes are either semantically related to the figurative or literal interpretation (bed, horse) or are semantically unrelated (controls). Based on semantic priming (Swinney '79), words related to the expression will prompt a faster reaction time than unrelated words. This priming has been argued to be evidence for meaning activation at that specific point during sentence processing. We hypothesize that both populations will prime (hence activate) the literal meaning. Unimpaired participants should also evince priming for the figurative condition. Of question is whether the autistic group will evince activation for the figurative. Finally, we test both groups’ interpretive knowledge of idioms using a temporally unconstrained sentence-picture matching task. From these results, we compare the autistic preadolescents’ implicit understanding of idioms based on their priming results and their seeming interpretive inability to extract figurative meaning, giving us insight as to whether or not preadolescents have a generalized implicit inability to understand idioms or if a more conscious linguistic modulator prevents their understanding.

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**#196 2:30-4:00 pm**

*Concrete and Abstract Evidence for Learning an Artificial Grammar*

Elizabeth Wylie, Speech, Language, and Hearing Sciences

Jessica Barlow, Speech, Language, and Hearing Sciences

This study aims to identify whether implicit or explicit memory is associated with learning of an artificial grammar by replicating a prior study by Knowlton and Squire (1996). In their original study, sensitivity to a complex Markovian rule system and bigram and trigram chunk strength (in terms of frequency of occurrence) was tested in amnesic patients and controls within the context of an artificial grammar. Amnesic patients were selected because they have impaired memory and intact implicit memory. All participants were shown artificial grammatical letter strings constructed from the Markovian rule system in training and were asked to reproduce what they saw. Following, they were shown test strings, of which some were constructed using the rule system and some were constructed with the occurrence of an error in the rule system. They were then asked to state if the test string was either grammatical or ungrammatical. The training and test strings also consisted of bigrams and trigrams, with low or high chunk strength, which allowed the researchers to examine the processing of exemplar-specific information. The amnesic patients and the controls demonstrated similar artificial grammar learning skills. Both groups of participants showed sensitivity to chunk strength and rule adherence in a similar way. Therefore, the results show artificial grammar learning, characterized by a rule based system and exemplar-specific information, relies on both concrete and abstract information. In replicating the study the same stimuli will be used, but with a larger, more homogeneous population consisting of 75 college-age adults. The participants will have less age variation in comparison to that of Knowlton and Squires’s experiment, as well as a larger number of participants, to test the reliability of findings of their prior study. We will examine and report on any differences in sensitivity to grammaticality and bigram and trigram chunk strength. This study serves to inform us about how the brain processes language in terms of how a grammar is acquired and how quickly the brain can adhere to the rule system of a language. It also informs us about how the frequency of units in a language affects the acquisition of a language.
#197 2:30-4:00 pm

Effects of Music Exposure on Fine-structure Distortion Product Otoacoustic Emissions

Jerica Yeilding, Speech, Language, and Hearing Sciences
Peter Torre, Speech, Language, and Hearing Sciences

The aim of this study is to investigate the effects of music exposure through earphones in normal hearing individuals using distortion product otoacoustic emission (DPOAE) fine structure measurements. Fine structure DPOAEs were elicited with small frequency resolution steps (i.e., 11 Hz) in order to evaluate the frequency response configuration between 1000 and 2000 Hz. These small steps further allow for the determination of how this recreational noise exposure affects very specific regions of the cochlea. Participants were recruited from undergraduate courses with an announcement at the beginning of classes. Each participant had clear ear canals, based on otoscopy, normal middle-ear function, based on tympanometry, and passed a hearing screening before beginning the research protocol. After participants blindly set an iPod to their comfortable volume, DPOAE fine structures were completed. The DPOAE measurement parameters included 2f1-f2 (where f2>f1 and f2/f1 = 1.2) elicited between f2 = 1000 and 2000 Hz and a frequency resolution of f2 = 11Hz with a presentation level (L1,L2) = 55,45 dB SPL. Once Pre-Music DPOAEs were measured, the participants listened to a 60-minute playlist of music within a relatively quiet environment. After the 60-minute playlist was finished, the Post-Music DPOAEs were measured. A comparison of pre and Post-Music DPOAE’s were evaluated for changes in threshold levels. Decreased threshold levels in Post-Music DPOEA’s indicate that the inner ear system is not functioning optimally and is temporarily impaired. Expected results are that after 60 minutes of music exposure DPOAE thresholds will decrease as a result of temporary damage to the inner ear system. Further predictions are that the level set by the individuals will create variations in the amount of decreases in DPOAE thresholds, with higher levels resulting in lower thresholds. This study will further the understanding of the effects of listening to music on the function of the inner ear. If temporary damage continues to be ensued upon the inner ear, permanent damage is a possible outcome. In the current times the use of personal music devices is wide spread and these findings could allow the public to be more aware of possible damage to their hearing as a result of listening to music.

#198 2:30-4:00 pm

Effects of Contralateral Suppression and Music Exposure on Distortion Product Otoacoustic Emissions

Melanie Hertan, Speech, Language, and Hearing Sciences
Peter Torre, Speech, Language, and Hearing Sciences

Previous research has shown that noise exposure causes a decrease in cochlear sensitivity and that broadband noise has the greatest suppression effect on DPs between 1000 and 3000 Hz. Considering the findings of other similar studies, the purpose of this study is to investigate the effects of music and white noise exposure in unimpaired individuals via measurements of distortion product otoacoustic emissions (DPOAEs). DPOAEs are a specific type of evoked cochlear response stimulated by the simultaneous presentation of two stimulus frequencies (F1 and F2), in which F2 > F1. Two separate conditions are exploring the effects of contralateral suppression, using white noise, on DPOAEs before and after music exposure. In one condition, participants listen to music through insert earphones binaurally, and in the second condition listen to music through an insert earphone in only the test ear, while the non-test ear is occluded with an earplug. Twenty participants will be tested by the end of this study. Participants are being recruited from college classes and all are screened prior to testing to ensure normal hearing. Predictions estimate that there will be an increase in response threshold with the simultaneous presentation of white noise, as well as after the hearing system has been exposed to music. If after analysis the predictions hold true, this would imply that during white noise and music exposure, the hearing system has been temporarily damaged and the cochlea, specifically, is not working as efficiently as it does in its normal state. The white noise exposure aspect will help show how contralateral suppression takes effect, in what conditions, and how the suppressed ear will work even harder to emit responses.
**Peptide inhibitors of Site-specific Recombination**

Marc Rideout, Biology
Anca Segall, Biology

We have identified peptide inhibitors of Site-Specific Recombination (SSR) that trap Holliday Junction (HJ) intermediates. Empirical evidence suggests that these peptides bind to the center of the HJ in an unknown conformation(s); however, all efforts to determine the structure of the inhibitors in complex with a HJ have been unsuccessful. Here we present a strategy using NMR to identify the conformation(s) of 13C and 15N labeled peptides as well as preliminary data which validates the approach.

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**Conservation Planning for SDSU Property on North Fortuna Mountain**

Ian Cain, Environmental Sciences
Matthew Rahn, Environmental Sciences

The area around the twin peaks of North Fortuna Mountain and lands to the east are owned by San Diego State University. This area totals roughly one-hundred sixty acres and has never been extensively surveyed or even visited by University staff or students. Along with field station staff, I conducted a survey of the property for plants, birds, and Lepidoptera including observational occurrence for other groups of animals. This survey was conducted by an initial trip for logistical information, and then seven trips for the collection of plant specimens along with three surveys for California Gnatcatcher which catalogued other bird species as well. Other animal species were sighted during these surveys and verified in consultation with various experts in the local fauna. The results of the survey found one-hundred sixty-seven species of plants, seven of which are listed with a sensitive status by California Native Plant Society. Animal species found totaled twelve species of Lepidoptera, five species of herpofauna, and twenty-two species of birds. Of these, one lizard and five birds have a sensitivity status. Based on past records seven species of
plants were newly recorded for the Mission Trails Regional Park area. All results were used to write a comprehensive conservation plan to improve the habitat, attempt to improve population size of rare and sensitive species, and designate areas of interest for future student use. The conservation plan called for no area of the property to be designated off limits due to habitat sensitivity while highlighting areas of interest based on levels of diversity. One of the first actions would be to conduct a Quino Checkerspot Butterfly survey since the primary host plant, Plantago erecta, was found. If this butterfly is not found then a general invertebrate survey should be conducted. This and other recommendations are incorporated into the plan designed to address immediate, short term, and long term needs. These sets of goals to be reached in five, fifteen, and thirty years are designed to significantly reduce the number of non native species, improve habitat, increase knowledge of the ecosystem of the site, and increase campus awareness and hopefully, use of the property.

**#201  1:15 pm**

**Patterns and Controls of Microbial Activity in the Coastal Sage Scrub Community of Mission Trails Regional Park**

Irene Hale, Biology

David Lipson, Biology

The coastal sage scrub ecosystem is an endangered ecosystem. It once ranged along the western coast of the United States, from the central California coast into Baja California. Due to urbanization and invasive species, it now only comprises 10%-15% of its previous habitat. The Coastal Sage Scrub is a rare ecosystem globally and is important to many endangered species, both plant and animal. It is characterized by aromatic and drought-deciduous shrub-covered lands consisting of black sage (Salvia mellifera), and white sage (Salvia apiana), among other shrubs, succulents, and cacti. Soil microbial communities are affected by the changes in the ecosystem. This study looked at the patterns and controls of microbial activity in the Coastal Sage Scrub community of Mission Trails Regional Park. Soil samples were collected on a monthly basis from December to April. The samples were taken from under shrubs and from gaps between shrubs in two sites. The sites differed by time since fire. One site, titled recently burned, burned in 2003, and the other site has not recently burned. Two sites varying in history of fire were used because fire events tend to increase the presence of invasive plants. Soil temperature, respiration rate, organic matter content and water content were measured on each sample collected. A substrate induced respiration (SIR) experiment was also run using glucose and salicylic acid as substrates, to determine the patterns and controls over the metabolism of Carbon by microbial communities. A regression was conducted between temperature and soil moisture that showed temperature was an important control over microbial activity in the winter months, but into the spring water became the dominant control. Between vegetation types, specifically shrubs and gaps, salicylate was better utilized by soil microbes under shrubs. This ability indicates that nonnative plants may slow down the utilization of secondary carbon sources by displacing the native shrubs. A simple regression of glucose respiration versus soil moisture content gave a P-Value of less than .0001. This indicates that although biomass was always present at comparable levels; however the activity of microbes was highly dependent on water availability. This research was supported by the NIH/NIGMS SDSU MARC Program 5T34GM08303.

**#202  1:30 pm**

**Stable Isotope Analysis of a Seagrass Food Web in San Diego Bay**

James Farlin, Biology

Todd Anderson, Biology

Stable isotopes of nitrogen (15N) and carbon (13C) were used to examine food web structure in a seagrass bed in San Diego Bay. Stable isotopes are used in food web studies because they act as natural tracers of feeding habits in situ. 13C signatures are generally conserved throughout trophic levels and are used to trace carbon from various sources of primary production, while 15N values increase 3-5 per trophic level and are used as an indicator for trophic position. Amphipods traditionally have been viewed as functionally redundant; however, results from recent studies have challenged this view by describing specialized feeding behaviors among amphipod taxa. If amphipods use different sources of primary production, their carbon signature will differ to reflect their dominant food source. If these amphipod families differ in trophic position, then we should observe differences in 15N values reflecting herbivorous, carnivorous, or omnivorous diets. Samples were collected from San Diego bay and immediately frozen. They were later thawed, sorted, and dried for 48 hours. Dried samples were hand-ground using a mortar and pestle, re-dried for 24 hours, and weighed into combustion tins. Tins were loaded into a Continuous Flow Mass Spectrometer (CF-MS) and analyzed for 15N and 13C values. No significant differences in 15N and 13C signatures were detected among the six amphipod taxa examined. Ordination, however, suggested that some isotopic differences might be ecologically important and statistically significant given larger sample sizes that provide greater statistical power. For example, Ischyocerid and Amphipod amphipods feed at the same trophic level (primary consumers); however, appeared to have different feeding preferences based on their differing 13C
values. Additionally, supplemental taxa from the seagrass ecosystem were examined in order to allow greater interpretation of the amphipod signatures. Two gastropods, *Lacuna* sp. and *Tectura* sp., exhibited 13C signatures most similar to that of seagrass. Although the amphipod families were not statistically different from each other, the observed differences corresponded with recent literature indicating diverse feeding behaviors in the amphipod. By increasing our sample sizes, we aim to improve our power to detect any real differences in the trophic ecology of these taxa.

**#203 1:45 pm**

**Community Based Parasitic Screening and Treatment of Sudanese Refugees**

Sarah Fredrickson, Public Health  
Stephanie Brodine, Public Health

**Statement of Problem:** A 2004 CDC study of the Lost Boys and Girls of Sudan resettled refugees (ages 21-30) reported a 69% prevalence of schistosomiasis and strongyloidiasis, prompting guidelines for empiric therapy on arrival to the U.S. Despite the fact that these chronic parasitic infections are associated with significant morbidity and mortality, these recommendations have not been widely implemented. Additionally, data is limited on the prevalence of these infections in more diverse Sudanese refugee groups, particularly children and females, and the frequency of co-infection with Loa loa, which precludes use of ivermectin. Seroprevalence of schistosomiasis, strongyloidiasis and Loa loa were assessed in a community based sample of resettled Sudanese refugees. Methods: Sudanese refugee families were recruited via community organizations for a questionnaire, including geographic exposures, history of chronic abdominal pain, physical exam, serologic parasitic screening, and treatment. Results: Nearly half of the 173 Sudanese (86/173; 49%), were infected with either schistosomiasis (45/170; 26%), strongyloidiasis (57/173; 33%), or both (16/170; 9%). There were no associations between age and likelihood of infection, aside from no schistosomiasis infections in children under 3. There were no Loa loa infections and ivermectin was provided to all participants. There was a strong community response to participation in the study and desire for screening and treatment. Conclusions: High infection rates of schistosomiasis and strongyloidiasis in a community based sample of Sudanese confirm the urgency for compliance with CDC guidelines for empiric therapy. Co-infection with Loa loa may be lower than estimated, allowing more effective therapy for strongyloidiasis. Supported by the NIH/NIGMS SDSU MARC Program 5T34GM08303 and CA-NARCH

**#204 2:00 pm**

**Do Acculturation and Language Preference Affect Responsiveness to Anti-smoking Media Messages? A Study of Individuals of Korean Descent Residing in California**

Golnoosh Behrouzian, Journalism and Media Studies  
Bey-Ling Sha, Journalism and Media Studies

Immigrant populations use media as a means of assimilating to their host culture. It is important to understand how effective media is in actually influencing immigrant behavior. The effectiveness of these messages can be dependent on factors such as acculturation to the host country and the language preference of the individual. A secondary analysis was done on data drawn from telephone interviews with Korean adults based on a probability sample during 2005-2006 in which 86% of those contacted completed interviews. The study comprised of a comparison between smokers and non-smokers. After a demographic comparison it was determined that smokers are less acculturated than non-smokers. Correlation tests were computed to determine if relationships existed between various acculturation factors and responsiveness to anti-smoking messages, and language preference and responsiveness to anti-smoking messages. It was determined that although non-smokers are more likely to be influenced by anti-smoking messages than smokers, within each individual group it is more likely that individuals with a lesser degree of acculturation will actually be led to more action and those with a higher degree of acculturation will be led to less action in regard to anti-smoking messages.

**#205 2:15 pm**

**Indoor and Outdoor Air Quality Status of Carbon Concentration of Fine Aerosol in Mumbai City**

Abba Joseph, Public Health  
Zohir Chowdhury, Public Health

A firm association between fine particles concentration and enhanced human health effects has been well established through numerous epidemiological studies. In the United States, Committee on Research Priorities for Airborne Particulate Matter, National Research Council identified that there is a gap in understanding personal exposure since exposures to particles generated by outdoor sources take place not only outside but also in indoor environments where the particles penetrate. In the present study we use a Minivol air sampler to monitor indoor (I) and outdoor (O) fine particles (PM2.5) in a control (C) and at a kerbsite (K), in Mumbai city, India for seven days in each of the
three seasons: summer, post-monsoon and winter of 2007-2008 using. The outdoor concentrations of fine particles at control site during summer, post monsoon and winter in \( \mu g/m^3 \) (units) were 77.64±51.71, 59.39±11.50, 95.77±28.10 whereas indoors it were 96.10±64.10, 87.09±15.21 and 97.06±21.66 respectively. The outdoor mass levels at kerbsite were 63.14±10.76, 92.12±15.73, 133.71±39.57 while indoor it were 60.97±2.39, 84.32±12.26 and 152.21±27.24 respectively. Using the same sample filter Elemental Carbon (EC) and Organic Carbon (OC) values in fine aerosol have been estimated for indoor and outdoor air using thermal optical reflectance method. The mass percentages of OC and EC at control site outdoor was 25.15% and 6.66% while indoor percentages were 32.45% and 9.99 %, whereas at kerbsite the outdoor mass percentage was 33.07%, 11.11% and indoor was 28.55%, 13.23 % respectively. The average I/O ratios at control site for PM2.5 I/O, OC I/O, EC I/O, OC/ECout were 1.24±0.23, 1.66±0.60, 1.73±0.66, 3.79±0.29 whereas at kerbsite it was 1.01±0.12, 0.96±0.2, 1.21±0.29, 2.91±0.23. Pearson correlation coefficients and significance is used to judge whether the confidence level was strong or weak. At kerbsite all the pollutants were highly correlated at <0.01 significance level while at control site PM2.5 indoor correlated well with outdoor EC \( r=0.49, p<0.05 \) and Indoor EC correlated with outdoor OC and EC concentration with \( r=0.61 \) and \( 0.63, p<0.01 \) indicating indoor mass levels are influenced by vehicular and near by dock activities. Good correlation between OC and EC outdoor with \( r=0.76, p<0.01 \) indicating origin of similar sources. This study indicates that vehicular emission source which operates close to the ground level has more impacts on household close to the traffic which may affect health exposures. The indoor concentration was higher as compared to outdoor concentration in control area indicating different sources responsible for higher indoor levels in Mumbai city. A research implication of the study is to remove the gap of understanding of relationship between indoor and outdoor air pollutants in Mumbai with respect to fine aerosol and carbon content. This can be used as input parameter for understanding health exposure and source apportionment studies. It can also act as guidance while setting ambient air quality standards.

#206 2:30 pm

Risk Factors for HIV Within the Rwanda Defense Forces

Judith Halbertson, Epidemiology
Stephanie Brodien, Epidemiology and Biostatistics

Background: Rwanda, within Africa, is heavily affected by HIV and endures a generalized epidemic which includes the Rwandan military community. Military populations battling the HIV/AIDS epidemic are faced with unique challenges because of several factors (e.g., being away from family members for long periods of time) that make them more likely to engage in HIV risk behavior. Risk factors for HIV within the Rwanda Defense Forces are unknown. Methods: Active-duty soldiers at selected sites in Rwanda were eligible for this study if they were > 21 years old and male. Because data collection was initiated recently, preliminary data reported herein includes only 10% (n = 20) of the total sample collected at one study site, but will include data for > 100 participants by the research symposium date. Soldiers included in the study were administered a self-report questionnaire that included basic questions on their background, sexual behavior and knowledge. Results: Data from 20 soldiers (mean age = 31 years old) were included in preliminary analysis. All soldiers had a secondary level of education or less and 74% (n = 14) were low ranking (Soldier or Corporal). Thirty percent were currently married, with mean age of 20 years old at first intercourse. Six (32%) soldiers reported having occasional sex partners. Most soldiers (85%) knew that HIV was not transmitted by sharing food with an HIV-infected person and that there is no cure for AIDS, while all soldiers (100%) knew that mosquitoes could not transmit the virus. Contrary to this, a high percentage of soldiers (61%) believed a person could get the AIDS virus from witchcraft/supernatural means or that a healthy-looking person could carry the virus (59%). Most soldiers (74%) felt persons with HIV should not feel ashamed, and agreed that a teacher with AIDS should be allowed to continue to teach (95%). Conclusion: Preliminary results indicate late sexual debut for soldiers but a high rate of sex with occasional partners. Education is still needed in some key areas of HIV transmission risks and beliefs.

Session B-3
Oral Presentation: Culture and Health I
Friday, February 27, 1:00 pm – 2:45 pm
Location: Casa Real

#207 1:00 pm

How Gender Interacts with the Relationship Between Authoritarian Parenting and Teen Relationship Violence

Ellesse Akre, Psychology
Emilio Ulloa, Psychology

Teen relationship violence (TRV) is an issue that is prevalent in our society and research has shown that females are just as likely to be perpetrators as males (Arias, Samios, & O’Leary, 1987). Research has alluded to authoritarian parenting (i.e., harsh punitive parenting) as a factor that contributes to this phenomenon (Lavoie et al., 2002; Small & Kerns, 1993). Several gender differences in prevalence and the predictors of teen relationship violence have been documented (Halpern, Oslak, Young, Martin,
Shulamit Ritblatt, Child and Family Development
Lauren Dlugosz, Psychology
Marital Satisfaction in Commuting Couples: Children Versus No Children

According to Family Development Theory, marital satisfaction declines with the addition of children into the family system, and then increases when the children leave the home. According to a study by Lawrence, Cobb, Rothman, Rothman, and Bradbury (2008), participants with children experienced a steeper decline in marital satisfaction over time than participants without children. The current research examines the relationships between commuters, their spouses and their children. A pilot study was conducted which defined a commuter family as a family in which one person exits and re-enters the family system at least ten times per year, or is absent from the family system for at least one month per year. Participants completed anonymous paper questionnaires which addressed marital satisfaction, communication, shared activities, conflict resolution, idealistic distortion, and opinion questions regarding the perception of familial roles. Of the commuting participants (N=36), 12 had children under the age of 18, 14 had adult children, and 10 never had children. It was predicted that the change in the family unit initiated by the addition of a child would result in a lower marital satisfaction in commuter couples with children than commuter couples without children. The results indicate differences in marital satisfaction between couples with minor children, couples with adult children, and couples without children. Future research of this field will further assess the relationships of commuting couples, such that results may help improve organizational programs for commuter families.

#209 1:30 pm
Collectivism and the Relationship between Social Support and Self-esteem
Belen Barragan, Psychology
Elizabeth Cordero, Psychology

Self-esteem can be defined as the confidence, satisfaction and self-worth felt by an individual about themselves. This value has been shown to have some correlation to one’s satisfaction with one’s social support. For example, if a young woman sees her friends and family to be supportive of her it is likely that she will have higher self-esteem than someone who does not feel that kind of support. A potential mediating factor in this relationship is the respective levels of individualism and collectivism of an individual. Prior research has indicated that disagreements exist in literature discussing the concept of individualism and collectivism. In general, individualism is the process of identifying one’s self by personal goals, including one’s personal behaviors and attributes. Collectivistic societies stress the group’s importance and contain a more interdependent outlook. Latino cultures tend to be collectivistic in nature but the impact these variables have on self-esteem and satisfaction with social support has yet to be seen. Given the differences between individualistic and collectivistic cultures, this study will attempt to reach an agreement in whether individualism/collectivism affects the relationship between satisfaction with social support and self-esteem in Latina and Latina-American college women. It is hypothesized that individualism/collectivism will partially mediate the relationship between satisfaction with social support and self-esteem in Latina and Latina-American college women. This study will analyze a subset of data from a project examining body image in Latina and Latina-American college women. Data collection is in progress; it is expected that data will be collected from 150 participants by February 2009. The Rosenberg Self-Esteem scale (RS-E; Rosenberg, 1965) is used to assess participants’ self-esteem. The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) is used to measure participants’ satisfaction with their social network and the Individualism-Collectivism Interpersonal Assessment Inventory, Family Subscale (ICIAI; Matsumoto et al., 1997) is used to measure participants’ levels of individualism/collectivism. Multiple regression will be utilized to investigate the potential mediating role of participants’ individualistic/collectivistic tendencies on the relationship between their satisfaction with social support and their self-esteem. Implications and limitations of the findings will be discussed.

#208 1:15 pm
Marital Satisfaction in Commuting Couples: Children Versus No Children
Lauren Dlugosz, Psychology
Shulamit Ritblatt, Child and Family Development

According to Family Development Theory, marital satisfaction declines with the addition of children into the family system, and then increases when the children leave the home. According to a study by Lawrence, Cobb, Rothman, Rothman, and Bradbury (2008), participants with children experienced a steeper decline in marital satisfaction over time than participants without children. The current research examines the relationships between commuters, their spouses and their children. A pilot study was conducted which defined a commuter family as a family in which one person exits and re-enters the family system at least ten times per year, or is absent from the family system for at least one month per year. Participants completed anonymous paper questionnaires which addressed marital satisfaction, communication, shared activities, conflict resolution, idealistic distortion, and opinion questions regarding the perception of familial roles. Of the commuting participants (N=36), 12 had children under the age of 18, 14 had adult children, and 10 never had children. It was predicted that the change in the family unit initiated by the addition of a child would result in a lower marital satisfaction in commuter couples with children than commuter couples without children. The results indicate differences in marital satisfaction between couples with minor children, couples with adult children, and couples without children. Future research of this field will further assess the relationships of commuting couples, such that results may help improve organizational programs for commuter families.

& Kupper, 2001; Hird, 2000). It is possible that the gender of the parent and the gender of the child are important factors in this relationship. Social learning theory suggests that learning can occur as a result of observing the behaviors and the outcomes of the behaviors of others and attachment theory suggest that a child’s relationship with their parents shape their interpersonal relationships outside of the family (Dekovic & Meeus, 1997). Thus, a child’s observation of punitive parenting practices and the results they illicit in the home may be generalized in relationships outside of the home. Thus, this study hypothesized that there will be a gender interaction in the relationship between authoritarian parenting and teen relationship violence, such that the relationship will be stronger when there is a gender match between parent and child. The current study utilizes data from 108 male and 124 female adolescents (mean age = 14.92) in one middle school and one high school. The results partially supported our hypothesis. Fathers parenting was not related to both boys or girls perpetration and victimization of TRV. Mothers parenting, however, was related to both male and female perpetration and female victimization of TRV. Our results suggest that mothers have the potential to have great influence on perpetration and victimization of teen relationship violence and can serve as a powerful resource for prevention. NIH/NIGMS SDSU MARC Program 5T34GM08303
#210 1:45 pm

**The Most Effective Therapeutic Treatment for Children Suffering from Post Traumatic Stress Disorder Based on the Type of Trauma Experienced**

Beth Janis, Psychology

Post Traumatic Stress Disorder (PTSD) is characterized as a constant and persistent anxiety following a traumatic event, causing individuals to re-experience the event, avoid associated stimuli, and have increased arousal (Copeland, Keeler, Angold, & Costello, 2007). Previous research has focused on symptoms and treatments of adults with PTSD, and an increasing amount of research has been done on children and adolescents afflicted with PTSD. A 2007 study revealed that two thirds of their sample experienced a traumatic event by the age of 16, with 0.5% (n = 6) meeting the criteria for PTSD, with a larger amount of children experiencing PTS symptoms such as painful recollection. Children more at risk of developing PTSD and PTS symptoms are older, have prior anxiety, and have experienced previous traumas (Copeland et al. 2007). This research examines previous studies detailing the available therapeutic techniques for children and adolescents suffering from PTSD. More specifically, it looks into the preceding traumatic events, in combination with available treatment methods, in order to determine if the most effective therapeutic technique is influenced by the type of trauma. For example, do children who have been sexually abused respond differently to one form of treatment than do children who have been physically abused? A variety of treatment methods were researched, such as Eye Movement Desensitization and Reprocessing Therapy (EMDR), Non-Directive Supportive Therapy (NST), Play Therapy, and Trauma-Focused Cognitive Behavioral Therapy (TF-CBT). A review of research articles indicated that while there is a variety of helpful treatments available for children and adolescents, the most comprehensive and effective treatment is Trauma-Focused Cognitive Behavioral Therapy. This therapy encourages the child to confront memories of the trauma while simultaneously practicing relaxation techniques, providing children the tools necessary to combat their painful recollection and anxiety. It also provides psycho-education for both children and parents, enabling the parent to better assist their child in coping with the trauma.

#211 2:00 pm

**Healing Aspects of Consciousness-raising: A Narrative Analysis of Blogging in the Fat Acceptance Movement**

Virginia Merritt, Communication
Patricia Geist-Martin, Communication

Size discrimination is one of the last standing forms of socially acceptable discrimination. Within the healthcare arena, size discrimination can cause patients to not seek future healthcare assistance and feel marginalized and silenced. To overcome the wounds of this discrimination, many seek outlets to voice frustrations and raise consciousness. Blogs have emerged as sites of advocacy for many groups, including the fat acceptance movement, as they allow for the marginalized to become agents of change through the sharing of experiences. Recognizing contemporary activism for emerging social movements as a healing of discrimination illuminates narratives as communicative acts of healing and blogs as consciousness-raising vehicles. Therefore, this study aims to connect size discrimination narratives into health communication research. Through a close analysis of First, Do No Harm’s narratives of size discrimination, researchers can begin to understand contemporary consciousness-raising as being healing activism.

#212 2:15 pm

**Personality and Sexual Orientation Factors as Determinants of Interpersonal Attraction**

James Weinrich, Psychology
Al Hillix, Psychology

The nature of interpersonal sexual attraction and sexual orientation remains a subject of controversy both in the academic world and in the world at large. One little-studied question is the nature of the ideal characteristics of, and desired activities with, the beloved (the person being desired), as expressed in the wishes of the lover (the person experiencing the desire). People who are attracted to women (gynephiles) fall into four categories: heterosexual men, bisexual men, bisexual women, and homosexual women. Conversely, androphiles consist of heterosexual women, bisexaul women, bisexual men, and homosexual men. The thesis is an attempt to answer two questions: 1. Do all gynephiles find women attractive in the same ways? 2. Do all androphiles find men attractive in the same ways? This is a new point of view in sexual orientation research: Instead of focusing on lovers (whose sexual orientation is a function of their gender identity and the sex or sexes of their desired partner or partners), it focuses on the attractive characteristics of the desired partners, and unites (with a common label and point of view) sexual orientation subgroups which have heretofore been considered separate. The Internet was used to recruit a sample of over 1,000 women.
Daniel Cipriani, Exercise and Nutritional Science
Amir Tabibnia, Exercise and Nutritional Science

Location: Chantico
Friday, February 27, 1:00 pm – 2:45 pm

Exercise and Nutritional Life Sciences
Oral Presentation:

#213 1:00 pm

Hamstring Stretching Study
Amir Tabibnia, Exercise and Nutritional Science
Daniel Cipriani, Exercise and Nutritional Science

PURPOSE: Evaluate the effect of weekly stretching frequency on the rate of gain and retention of muscle flexibility. METHODS: This was a single blind, randomized, repeated measures intervention study. Sixty-two healthy male and female subjects (age range 18–46 years) were randomly assigned to one of five stretching groups: control (no stretching), S3 (stretch three days/week, once/day), S6 (stretch three days/week, twice/day), S7 (stretch daily, once/day), or S14 (stretch daily, twice/day). Stretching was performed according to established protocol: a 30 second hold for each stretch, repeated two times in a single session. Stretching was performed to the hamstring muscles. The study involved two distinct time phases: a stretching phase (4-weeks) and a cessation phase (4-weeks). During the stretching phase, all experimental subjects stretched according to their group membership. During the cessation phase, all subjects stopped all stretching to mimic the experimental conditions. RESULTS: Fifty-three subjects completed the study (mean age = 24.0 ± 5.5 years). Initial mean hip ROM was 79.2 ± 13.1°. There were no differences between groups in hip ROM at baseline. The control did not change at any point in the eight-week study. At four weeks, all four stretching groups increased at a similar rate (mean hip ROM = 97.0 ± 12.3°). At eight weeks, all four groups decreased at a similar rate (mean hip ROM = 87.7 ± 12.2°). The increase and decrease were statistically significant at p < 0.05. ROM at week eight was also significantly greater than at baseline (p < 0.05). CONCLUSION: Frequency of stretching did not influence the rate of gain or decline between the groups. Since all experimental groups had a similar rate of gain and loss, individuals who use stretching for recreational exercise may not be required to stretch as frequently as once thought.

#214 1:15 pm

A Unique Snack Option
Vincenta Grassano, Exercise and Nutritional Science
Kathleen D'Ovidio, Exercise and Nutritional Science

In much of today’s society, increasing numbers of individuals are now being diagnosed with celiac disease. The prevalence of the disease has been underestimated in previous years and, in some cases, celiac disease goes unnoticed and undiagnosed. However, awareness is increasing and diagnostic measures are advancing. In fact, the prevalence is now considered to be about 1 in 133 persons in the United States. Popcorn is a high quality, gluten-free carbohydrate source, which means it takes longer to consume and maintains your satiety for an extended period of time. The objective of the study was to develop a popcorn bar that could mimic existing granola and be widely distributed to health food grocers across the United States. The goal was to make a convenient, nutrient dense snack food that is free of gluten, but maintains nutrient values and meets basic dietary requirements. The target audience was aimed towards people between the ages of 6 and 60 who eat popcorn and granola bars. Five recipe trials of the popcorn bars were created and tested; the fifth recipe trial was chosen as the product of choice because it satisfied the most objectives and produced a higher quality product. The final recipe was prepared using the following ingredients: popcorn, honey, dried cranberries, raisins, pecans, almonds, unsalted butter, olive oil, corn syrup, peanut butter, butter vanilla flavoring, vanilla extract and salt. Nutrition students (n=14) and non-nutrition students (n=14) alike said they would purchase the product. Saltiness in addition to the presence of vanilla flavor in the popcorn bar was found appealing by a significant number of sensory panelists (both nutrition and non nutrition panelists). However, the sweetness of the bars wasn’t accepted by a unanimous number of panelists and many classified the popcorn bar as too sweet on the hedonic testing scale. The product resulted in a positive response from a significant number of people who tried it, and overall the goals and objectives of the study were...
**Abstr Acts**

**Mee Young Hong, Exercise and Nutritional Science**

**Andrea Chapin, Exercise and Nutritional Science**

**Inflammation in Rats**

**Dark Chocolate on Serum Lipid Profiles and The Effects of Dark Chocolate vs. Bloomed**

**compared to the control (**

*Background*: Cardiovascular Disease (CVD) is the leading cause of death for men and women in the United States. High risk lipid profiles have been established as risk factors of CVD. In addition, C-reactive protein (CRP) is a reliable marker for inflammation and a predictor for CVD events. Chocolate contains antioxidants that improve serum lipid profiles and decrease CRP levels. Bloomed chocolate forms when regular chocolate is repeatedly exposed to heat, forming a white residue. Objective: The purpose of this study was to ascertain if dietary intake of dark chocolate affected serum lipid profiles, specifically LDL-cholesterol, HDL-cholesterol, total cholesterol, triglycerides, and a marker of inflammation, CRP. The effects of bloomed and regular dark chocolate were investigated. These markers were assessed to determine if dark chocolate protects against CVD.

Methods: Forty-eight male Sprague-Dawley rats were divided into six groups in a three diet by two treatment design. Three diets, dark chocolate, bloomed dark chocolate, and a control, were given to both treatment groups, which were injected with either the carcinogen azoxymethane or saline. After 10 weeks, rats were euthanized and blood was collected to assess serum lipids. Organs, including the kidney, liver, spleen, and epididymal fat pads, were collected for evaluation and CRP levels were assessed. Results: The chocolate diets, regardless of blooming, had significantly decreased triglycerides (p=0.05), total cholesterol (p=0.0001), and LDL-cholesterol (p=0.012) as compared to the control. Organ weights of the liver and kidney were lower among carcinogen-injected animals as compared to the control (p=0.0451 and p=0.0462, respectively) and epididymal fat pads were lower among either chocolate group as compared to the control (p=0.0169). Chocolate diets significantly lowered CRP concentrations (p<0.001) as compared to the control. Conclusion: The results of this study suggested that dark chocolate protects against the risk of CVD by decreasing inflammation and serum lipids. In addition, this study showed that there was no significant difference between the effects of regular and bloomed dark chocolate on serum lipids and inflammation.

**#216 1:45 pm**

**Role of Central Adaptation on Sweat Gland Response to Heat Acclimation**

Travis Numan, Exercise and Nutritional Science

Fred Kolkhorst, Exercise and Nutritional Science

Acclimation to heat causes earlier sweat onset and an increased sweat rate. These changes occur from neural and peripheral adaptations to the sweat gland. However, it is unknown whether central neural adaptation is required for these peripheral adaptations to occur. Thus, the purpose of this study was to investigate the role of active sweating in heat acclimation. Eight active men and women were given three 0.1 mL injections of botulinum toxin serotype A (BOTOX) within a 5 cm² area of the dermal layer on one forearm to prevent neural stimulation of the sweat glands. Saline was injected in a similar manner on the contralateral forearm. Afterwards, subjects walked or cycled for 10 consecutive days in the heat (35 °C, 50% RH) for 90 min at 50% of their estimated maximal heart rate reserve. End-exercise heart rate and core temperature decreased (p < 0.0001) and whole-body sweat rate increased (p = 0.033) over the 10 days of exercise indicating that subjects successfully acclimated to the heat. On days 1 and 10, the forearm sweat glands were stimulated using pilocarpine (a cholinergic agonist) iontophoresis. After acclimation, forearm sweat rates were higher on the control forearm (0.65 ± 0.21 vs. 0.77 ± 0.23 mg/cm²/min; p = 0.021), but reduced on the BOTOX-injected arm (0.66 ± 0.23 vs. 0.32 ± 0.19 mg/cm²/min; p = 0.0001). These data suggest that sweat glands must actively sweat to become acclimated. In conclusion, heat acclimation involves both neural and peripheral sweat gland adaptation.

**#217 2:00 pm**

**Ventilatory Responses During a 5-s TASER® X-26 Exposure after Heavy Exercise**

Amanda C. Barnard, Exercise and Nutritional Science

Fred Kolkhorst, Exercise and Nutritional Science

Law enforcement is increasingly using the TASER as a nonlethal means to control violent and combative suspects. However, the safety of its use is being questioned. Currently, no published empirical research exists on the ventilatory responses during a TASER exposure. PURPOSE: This study investigated the ventilatory responses in humans during a 5-s TASER exposure after
heavy exercise. METHODS: Seven healthy male and female San Diego County Deputy Sheriffs performed incremental cycling (6-12 min) to 85% of predicted maximal heart rate to simulate the metabolic effects of a struggle prior to a TASER exposure. Subjects dismounted the bike and were given a 5-s TASER® X-26 electrical discharge during which minute ventilation, breathing frequency, and tidal volume were measured. At least 1 week later the same subjects returned to serve as their own control and the trial was repeated using the same protocol but without the TASER exposure. RESULTS: The average number of breaths during the 5-s TASER exposure was 4.0 ± 0.8. RM ANOVA indicated that minute ventilation and breathing frequency were significantly greater in the TASER exposure group than the control group (p < 0.05). There was no statistically significant difference in tidal volume between the two trials.

<table>
<thead>
<tr>
<th>Breathing frequency (breaths·min⁻¹)</th>
<th>TASER</th>
<th>Control</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>36.8 ± 8.4</td>
<td>25.6 ± 4.9</td>
<td>0.023</td>
</tr>
<tr>
<td>Tidal volume (L)</td>
<td>1.7 ± 0.5</td>
<td>1.8 ± 0.6</td>
<td>NS</td>
</tr>
<tr>
<td>Minute ventilation (L·min⁻¹)</td>
<td>61.7 ± 20.7</td>
<td>43.3 ± 12.7</td>
<td>0.009</td>
</tr>
</tbody>
</table>

CONCLUSION: These data suggest that humans retain the ability to breathe and do continue to breathe during a 5-s TASER exposure. Furthermore, following strenuous exercise, the TASER exposure was associated with an increase in the breathing frequency but had no effect on tidal volume. This study was funded by the National Institute of Justice (2005-IJ-CX-K051)

#218  2:15 pm

The Effect Of Soy Protein on Plasma Lipid and IL-6 Levels in Dextran Sodium Sulfate-treated Rats
Rachel K. Straub, Exercise and Nutritional Science
Mee Young Hong, Exercise and Nutritional Science

Background: Clinical and experimental data have indicated that soybeans, soybean constituents, and soy isoflavones have health implications in preventing cardiovascular disease (CVD). Objective: This study investigated the effects of a 20% soy protein diet in comparison to casein on (1) serum lipid levels, and (2) inflammation as indicated by the interleukin-6 (IL-6) level in 3% dextran sodium sulfate (DSS)-treated Sprague-Dawley rats. Methods: Forty male rats were randomly assigned into one of four groups: casein, casein + DSS, soy protein, and soy protein + DSS. DSS is a well-known inducer of inflammation. The casein diet was isoflavone-free, whereas the soy protein isolate diet contained the following isoflavone concentrations (g / g soy protein): genistein (825), daidzein (485), and glycitein (185). On day 27 of feeding, colitis was induced using 3% DSS in drinking water. On day 30, the animals were sacrificed and plasma lipid and IL-6 concentrations were measured, along with final body and organ weights. 48-hour food and water intake, along with weekly body weight, were measured throughout the duration of the study. Results: Soy protein decreased total cholesterol (P<0.001) and LDL-cholesterol (P<0.001) compared to casein. However, there were no significant effects on serum triglyceride and HDL cholesterol. DSS treatment increased serum IL-6 levels (P<0.05), but IL-6 levels were not significantly different between diet groups. Interestingly, soy protein fed rats had lower final body weights (P<0.05), along with lower liver (P<0.001) and epididymal fat weights (P<0.05), despite no difference in food intakes. Conclusion: Soy protein isolate may lower the risk of CVD by improving serum lipid levels and lowering body weights. Further study is warranted to examine the mechanism of soy protein in body weight reduction and/or alteration of body composition. This study was supported in the Advanced Nutrition Lab at San Diego State University and funded by SDSU UGP and CHNR08-810.

Session B-5
Oral Presentation:
Civil and Environmental Engineering
Friday, February 27, 1:00 pm – 2:45 pm
Location: Council Chambers

#219  1:00 pm

Removal of Sulfadiazine and Sulfamethizole from Aqueous Solution by Ozonation
Alison Mumper, Civil Engineering
Temesgen Garoma, Civil Engineering

Scientific studies conducted in the U.S and worldwide have reported widespread occurrence of pharmaceuticals in treated drinking water, surface water, groundwater, and wastewater treatment plant effluent. Along with human and animal excretion, pharmaceuticals are released into the environment through several pathways. These include: effluent from a pharmaceutical manufacturing plant, leachate from a landfill containing medical waste, disposal of unused or expired pharmaceuticals, recycled water used for groundwater recharge. Since eliminating pharmaceuticals for therapeutic use is not a viable option, treating them in aqueous solutions is the best way to control pharmaceuticals.
Investigation of Surfactant Modified Activated Carbon for Recycled Water Disinfection

Jonathan Kocher, Environmental Engineering

As a result of the U.S. desire to reduce dependency on imported oil, ethanol has emerged as a major component of gasoline. Ethanol is an organic solvent completely miscible in water, and could affect the physicochemical properties of groundwater, soil surface chemistry, and the fate and transport of pollutants, such as heavy metals. The principal focus of this research is to investigate the influence of ethanol on the adsorption capacity of heavy metals in ground water. This was accomplished by performing batch rate studies to determine the kinetic rate of adsorption and adsorption isotherm studies to determine the adsorption capacity of heavy metals in ground water. The results have shown that all variants of CTAB achieved 99.9% to 100% reduction of bacteria in tertiary effluent. In conclusion, surfactant modified GAC could be used as an effective disinfection technique for recycled water.

Effects of Ethanol on Adsorption of Heavy-metals on Soil

Lalitha Thotakura, Environmental Engineering

The principal focus of this study is to determine if surfactant loaded GAC can be used in the adsorption of heavy metals from soil. Surfactants are known to be effective adsorbents for heavy metals. The surfactants used in this study are cetyltrimethylammonium bromide (CTAB) and didecyldimethylammonium bromide (DDAB). Both surfactants are classified as quaternary ammonium compounds (QACs) and are known to have high adsorption capacities. The results have shown that all variants of surfactant loaded GAC achieved 99.9% to 100% reduction of bacteria in tertiary effluent. In conclusion, surfactant modified GAC could be used as an effective disinfection technique for recycled water.
and kinetics of Cadmium (Cd), Copper (Cu), Lead (Pb), and Zinc (Zn) on the surface of soil. The research has potential to impact natural attenuation techniques which rely on adsorption to reduce the mass, toxicity, and mobility of heavy-metals in the subsurface. The experiments were conducted in polyethylene bottles with a measured mass of soil added to it. 40 ml of water-ethanol solution containing a target heavy-metal at concentrations 0, 100, 250, 500, 750 and 1000 µg/L is introduced and the contents were mixed at 200 rpm. At the end of equilibrium (determined from adsorption kinetics), samples were withdrawn, filtered and analyzed using an Inductively Coupled Plasma Mass Spectrometer. The above procedure is repeated for a water-ethanol solution containing varying concentration of ethanol. The experimental results of Cd onto bentonite are fitted to Freundlich Isotherm ($q = C_{kd}$), which indicates that increasing the ethanol fraction from 0 to 10% resulted in a reduction of the adsorption capacity by 57% and increasing the ethanol fraction from 0 to 50% decreased the capacity by about 21%. In addition, the Freundlich parameters, $1/n$, decreased as the fraction of ethanol increased. A similar trend was observed for the sorption of Zn, Cu and Pb onto bentonite. From this study it can be seen that the adsorption capacity of bentonite decreased as the fraction of ethanol increased. This decrease in adsorption capacity is a threat to the environment due to the increase of heavy metals in groundwater.

**ABSTRACTS**

**#222 1:45 pm**

Oxidation of Sulfamethoxazole and Sulfathiazole from Aqueous Solution by Ozonation and H2O2 Process

Shyam Krishna Umamaheshwar, Environmental Engineering

Temesgen Garoma, Environmental Engineering

The release of pharmaceuticals into the environment has potential risk of contaminating the aquatic region. A large amount of pharmaceuticals and personal care products consumed by humans and animals are not metabolized completely; approximately 50% of the parent antibiotics are excreted from the body unchanged. Pharmaceuticals and personal care products have been detected in ground water and surface water throughout the world and tend to have a physiological effect on humans and animals. This is a major concern since it affects the aquatic life by disrupting the endocrine system. Among the class of pharmaceuticals detected, sulfonamides were widely detected in concentrations of few hundreds of ng/L. The classes of sulfonamides studied are Sulfamethoxazole (SMZ) and Sulfathiazole (STZ). SMZ is used for the treatment bacterial infection and some fungal infection. SMZ and is also used as veterinary drugs. The objective of this research is to study the effectiveness of ozonation and ozone/H2O2 process for the removal of SMZ and STZ from aqueous solution under different experimental conditions by varying the concentration of ozone, concentration of H2O2, and water quality in terms of alkalinity and pH. The experimental setup for the study consists of an oxygen tank, an ozone gas generator, a reaction vessel, and devices for influent and effluent ozone gas and aqueous ozone measurement. The reaction vessel was equipped with openings for ozone gas inlet and outlet, aqueous ozone probe, and sampling collection. Two glass diffusers were used to sparge ozone gas into the solution at a constant flow rate. The reactor was operated in a semi-batch mode and the contents were stirred continuously using a magnetic stirrer. The study evaluated the removal of SMZ and STZ from aqueous solutions using ozonation under different experimental conditions by varying influent ozone gas concentration, concentration bicarbonate ion, and pH. The results of the study showed that ozonation was effective in eliminating the SMZ and STZ from aqueous phase. Increasing the influent ozone gas concentration resulted in an increase in the removal of SMZ and STZ. Similarly increasing the pH resulted in increased removal rate.

**#223 2:00 pm**

Removal of Bisphenol A from Aqueous Solution by Ozonation

Shinsyu Matsumoto, Environmental Engineering

Temesgen Garoma, Civil and Environmental Engineering

Bisphenol A (BPA) is used as an intermediate monomer in the production of epoxy resins and polycarbonate plastics. BPA is an endocrine disruptor having estrogenic activity, which increases the rate of growth of MCF-7 breast cancer cells. Studies have indicated that most BPA in wastewater will decompose through biodegradation, adsorption, and photooxidation, however endocrinetically active byproducts, inadequate mineralization, and prolonged reaction time pose potentially significant disadvantages. The objective of this study is to examine oxidation of BPA and identify the byproducts, using ozonation under different experimental conditions, i.e., by varying ozone concentration, pH, alkalinity, and initial BPA concentration. The experimental equipment includes: oxygen tank; ozone gas generator; reaction vessel; and devices for ozone gas and aqueous ozone measurement. Ozone gas was sparged into the BPA solution, operated in a semi-batch mode, and stirred continuously using a magnetic stirrer. BPA solution was prepared in deionized water, in which the pH and bicarbonate ion concentration of the solution was adjusted to desired values using sulfuric acid and/or sodium hydroxide and sodium.
bicarbonate, respectively. Ozone gas was introduced, after which aliquot samples were for BPA analysis. Ozone gas concentration of 1.4, 2.2 (triplicate), and 5.1 mg L\(-1\), achieved approximately 84, 92, 98% BPA removal from solution in 14 minutes, respectively (figure 1). Varying alkalinity did not produce significant changes in removal of BPA from aqueous solution (figure 2). Bicarbonate and carbonate ions are known scavengers of OH and promoters of aqueous ozone decomposition. BPA decomposition increased with an increase in pH (figure 3). At 14 minutes, pH values of 5.0, 7.0, and 10.0 produced BPA removal rates of 79%, 92%, and 97%, respectively. As the initial concentration of BPA increased to 57.0 mM, the removal of BPA significantly reduced for the same influent ozone gas concentration (figure 4). As the influent ozone gas concentration increased, the removal of BPA also increased. Varying alkalinity did not effect BPA removal. Increase in pH caused an increase in BPA degradation. Increased initial BPA concentration reduced decomposition.

Session B-6
Oral Presentation: Physical Chemistry and Sciences
Friday, February 27, 1:00 pm – 2:45 pm
Location: Presidential Suite

### #224 1:00 pm

**Hall Effect Study of Superconducting CaFe\(_2\)As\(_2\) Under Pressure**

Derek Padilla, Physics
Milton Torikachvili, Physics

CaFe\(_2\)As\(_2\) exhibits a superconducting phase in a narrow hydrostatic pressure range centered around 5 kbar for temperatures less than 12 K. At ambient pressure there exists a first order structural transition as the temperature is lowered below 170 K. After applying pressure the phase transition is gradually suppressed and superconductivity is observed between 2.3 and 8.6 kbar. When the pressure is increased beyond approximately 8.6 kbar, superconductivity is destroyed and a different phase associated with a clear decrease in resistivity is detected. In this study, we carry out measurements of the transverse magneto-resistivity (Hall effect) in the temperature range from 2-300 K, in hydrostatic pressures up to 20 kbar. These measurements help understand the unique electronic transport properties of these materials.

### #225 1:15 pm

**Structure and Properties of Al\(^+\)**

Kyle Rollin, Physics
Michael Bromley, Physics

The properties of a number of states of both the singly and doubly charged aluminium ion are determined from a large basis configuration interaction calculation. The main focus is on the polarizabilities of the low-lying states. A quantitative understanding of the polarizability of singly charged aluminium is particularly useful because of the presence of a ground state (1Se) to excited state (3Po) transition that may be used in the next generation of atomic clocks that far surpass the precision of the caesium standard in use today. Experimentalists at the National Institute of Standards & Technology (NIST) have been able to report the relative frequency ratio of singly charged aluminium and singly charged mercury based atomic clocks to one part in 10\(^{18}\) Hz. The largest source of uncertainty in aluminium based atomic clock experiments are the effects of blackbody radiation (BBR), which is proportional to the difference in polarizabilities of the states that make up the transition. Our calculations are in agreement with a recent experimental measurement of the BBR shift at the NIST.

### #226 1:30 pm


Derek Butler, Chemistry
Luarance Beauvais, Chemistry and Biochemistry

By designing strategies to prepare metal-organic frameworks (MOFs) with coordinatively unsaturated metal centers, better catalysts and possibly better gas sorption agents, especially for H\(_2\) storage, can be prepared. Making these MOFs will be accomplished using organic building blocks with two distinct metal-binding sites. The first metal site will be used to extend the solid out in either 2D or 3D, where the second metal site will house the coordinatively unsaturated metal ion that defines the functionality of the solid. Tetracarboxyphenylporphrin (TCPP) was chosen as the organic linker because it will bind four Cd(I)I ions to facilitate the extension of the solid, and the four N atoms located in the porphyrin ring that can be used to bind the second, functional metal. To synthesize the material, TCPP along with CdCl\(_2\), and either NiBr\(_2\), or PdCl\(_2\), were mixed together in diethylformamide
(DEF) and heated for two days at 150º C. Single crystals were harvested and subjected to single crystal X-ray crystallography for structure determination. Powder X-ray was collected to confirm the structure of the bulk material. Thermogravimetric analysis was used to analyze the loss of solvent molecules and diffuse reflectance UV-vis spectroscopy was used to monitor the coordination environment of the functional metal site. Finally gas sorption measurements were carried out to determine the ability of different metal ions to bind various small molecules. Several new structure types were discovered, and will be discussed in this talk. Electronically, the functional metal site alters the location of free porphyrin peaks in the UV-vis spectrum, which is to be expected. With gas sorption there seems to be a preference for the structures to uptake H₂ vs. N₂, thought they do not show as much uptake as one would think by looking at the porosity of the structures. Though both compounds are structurally different, it has been shown that placing a functional metal in to a MOF is achievable. The next step is to use different functional metals and see the affect of the halogen on the metal salts.

#227 1:45 pm

**Ruthenium Catalyzed Intramolecular Cyclization Reactions to Synthesize Heteroaromatic Compounds: Derivatives of Indoles and Benzofurans**

Reji N. Nair, Chemistry
Douglas Grotjahn, Chemistry

A variety of biologically active natural products possess nitrogen containing heterocycles, like indole, and have attracted much attention because of their physiological properties. Many research groups have made indole derivatives from 2-ethynylanilines. For example, Zhao et al. reported the diethyl zinc catalyzed intramolecular hydroamination and Nishizawa et al. reported mercury triflate catalyzed cycloisomerization. Our group reported a novel bifunctional ruthenium catalyst for alkyne hydration. During the course of study of the scope of hydration chemistry it was found that when an aldehyde is formed in presence of a sulfonamide, an intramolecular cyclization reaction followed by loss of a water molecule occurred to give five and six membered ring compounds. Here we present the use of this catalyst which can eventually perform an intramolecular hydroamination reaction to yield pyrrole and indole moieties. The striking feature of this reaction is the ability to specifically cyclize terminal alkynes as opposed to internal alkynes. Studies were done on phenolic compounds and it was found that the methodology can be applicable to synthesize benzofuran derivatives too. Efforts to extend this methodology to sulfur analogs will also be discussed.

Session B-7
Oral Presentation: Social Relationships
Friday, February 27, 1:00 pm – 2:45 pm
Location: Quetzalcoatl A

#233 1:00 pm

**Going Postal: Conceptualizing the Institutional Rage Attack**

Sara Baker, Communication
Brian Spitzberg, Communication

School and work have become two of the most symbolic cultural spaces, creating a setting for a life that plays out on T.V., in movies, and within the written medium (Ames, 2005; Kellner, 2008). In addition, the U.S. Post Office, the first organization created by the New Deal policy, is symbolic space reminiscent of quaint, small town America (Ames, 2005). The interactive model of the institutional rage attack seeks to provide a general framework for how and perhaps why this phenomenon plays out in workplaces and schoolyards across the U.S. nearly every year. This model conceptualizes the IRA process as it traces a worker or students response to the institution. Three factors contribute to the lowering of an individuals perceived social status, which sets in motion negative responses that eventually lead to aggression and possibly violence. These factors include: 1) state self-esteem defined as a subjective gauge of inclusionary status designed to protect an individual from rejection while maintaining positive self-esteem (Leary, Tambor, Terdal, & Downs, 1995), 2) face...
needs, and 3) institutional factors, which include workforce (i.e. gender, socioeconomic status), environment (i.e. hazards, stress, lack of control, shared workspace), and interactional climate (i.e. interpersonal rejection, bullying, gay harassment). When social status is lowered an individual will engage in impression management, which is defined as perceptions of an ideal social identity that an individual attempts to maintain during the course of an interpersonal interaction (Arkin, 1981; Tedeschi & Reiss, 1981). Gay harassment is a particularly harmful subset of communicative aggression with an estimated two million U.S. American students labeled by their peers as gay regardless of sexual preference (Human Rights Watch, 2001). If this type of communicative aggression is prevalent in the interactional climate for a male experiencing a lowered social status then anti-gay prejudice tactics will be enacted to exert marginalized manhood. Both tactics of impression management and anti-gay prejudice lead to acts of aggression, which fall along a continuum of behaviors ranging from low (i.e. verbal threats) to high (physical assaults). In turn, these acts of aggression also travel along a continuum of institutional violence ranging from low (i.e. suicide) to high (i.e. IRA). These acts of institutional violence can be moderated by the use of certain preventative strategies, which include counseling and security, but this relationship is asymptotic.

#230 1:15 pm
Mrs. Robinson Reexamined: A Look at Current Views of Female-older Relationships
Christa Wegner, Communication
Peter Andersen, Communication

The inundation of media attention to the Cougar phenomenon has spawned television shows, books, and web sites. Yet very little academic research has been done on the topic. Premised on ancient wisdom and scholarly research that indicates we often judge a persons character by the company they keep, this study seeks to determine how women who engage in female-older relationships are perceived in terms of physical and social attractiveness, credibility, and power. Results show that women with younger attractive partners are not afforded the same positive character attributions as men with the cliché trophy wife. However, the fact that the women were not judged negatively in light of their choice or lack of companion, may be interpreted as a sign that it has become acceptable for women to consider the same age range of dating choices that males have enjoyed for some time. The data also supports previous research that physical attractiveness significantly influences assessments of a persons character and ability, but unlike past studies, our results are not all in favor of the more attractive person. Although the attractive female was assumed to be more powerful, the less attractive female was seen as more credible. These findings suggest that beauty may be both an asset and an impediment in the grand scheme of persuasion and interpersonal relations.

#232 1:30 pm
Married with Children: Lesbian’s Coming Out Stories, An Oral History Project
Lisa Van Dermark, History
Edward Blum, History

The purpose of this study is to collect the coming-out stories of women who were married, had children and later realized they are lesbian and seeks to use feminist oral history methods to reveal the challenges these women faced and overcame. I hope to include three women from each decade: 1970s, 1980s, 1990s and 2000 and compare their experiences.

#228 1:45 pm
Finding Mr. Wonderful: Factors Affecting for Females in the Detroit Area Study, 1984
Makenzie Phillips, Communication
Carmen Lee, Communication

This study investigates how marital communication affects the amount of satisfaction wives perceive when specifically dealing with spousal interaction, division of household labor, marital conflict, and mate selection criteria within the framework of social exchange and social equity theories. A total of 459 heterosexual, ever-married women were surveyed from the Detroit metropolitan area in 1984. This current study utilized the data in order to further investigate the phenomena of marital satisfaction and mate selection. It was hypothesized that wives levels of satisfaction increased when marital communication was high, division of labor (i.e. chores, money, food) was perceived to be fair, and arguments dealing with household chores were won, which were not supported. Conversely, results indicated that wives level of marital satisfaction decreased if arguments about finances were won by their husband. Results are discussed.

#231 2:00 pm
Is Having Bad Parents Linked to Having Bad Friends?
Brenton Stewart, Psychology
Audrey Hokoda, Child and Family Development

Parenting styles and peer influence are important factors that have an effect on an individuals development and shaping of behavior (Harris, 1995). Authoritarian parents may not encourage their children to become actively involved in the decision-making
process and may not provide them with the experience needed to engage in thoughtful and responsible behavior (Lindner Gunnoe, Hetherington, & Reiss, 1999). This lack of thoughtfulness and responsibility may promote the choice of negative friendship groups during adolescence and adulthood. This study focuses on the relationship between authoritarian parenting and peer perpetration of emotional teen relationship violence (TRV). A sample of 108 male and 124 female middle and high school students (12-17 years old) completed a survey assessing parenting styles, and peer norms. The findings show that there is a gender difference in the relationship between authoritarian parenting and peer perpetration of emotional TRV. The relationship of parenting style and peer perpetration was significant for females (R = .302, p < .001) but not for males (R = .152, p > .05). These results indicate the importance of looking at gender differences in the relation between parenting and peer factors.

Session B-8
Oral Presentation:
Language Learning Disorders and Processing II
Friday, February 27, 1:00 pm – 2:45 pm
Location: Quetzalcoatl B

#234 1:00 pm
Spoken and Written Language Performance
Darin Woolpert, Speech, Language, and Hearing Sciences
Judy Reilly, Psychology

English language learners (ELLs) are non-native speakers of English, representing 10% of the student body of U.S. schools. They have well-established problems with academics in general and literacy in particular. These problems persist throughout their academic careers, from school age through high school. Questions remain, however, regarding the nature of these deficits and the best way to address them. Specifically, it is unclear whether the problems are due to deficits in early emerging literacy skills, such as word decoding; or late emerging skills, such as reading comprehension. In the current study, 72 students from kindergarten to second grade were given standardized tests of spoken (vocabulary, sentence repetition) and written language (word decoding, single-word spelling) as well as a spoken and written narrative task adapted from the Test of Narrative Language. On the standardized tests, the ELL children lagged behind age level in spoken language but not in written language. Students in kindergarten made a significantly greater proportion of spoken morphological errors than those in first grade but no significant differences were found in morphological error rate between the first and second graders on either narrative task. These results suggest that it is an overall lack of linguistic proficiency that underpins the literacy problems of ELL children, and not a problem with written language per se. More specifically, it suggests that the problems of ELL children are due to problems with late, rather than early, emerging literacy skills. This finding is crucial as many interventions being used with ELL students focus on improving early skills, which our data indicate the children are acquiring. As a result, vocabulary and morphosyntax will continue to go undressed as areas of particular vulnerability in these students as they progress through their academic careers.

#235 1:15 pm
Speech and Language System Interactions in Children with Speech Disorders
Alycia Cummings, Speech, Language, and Hearing Sciences
Jessica Barlow, Speech, Language, and Hearing Sciences

Understanding how children create, store, and access their speech sound representations is important for clinicians working with children who have productive speech disorders. However, it is also important to take into account the interactions speech sound systems have with other language systems, as these interactions may also affect treatment efficiency and/or effectiveness. Both real words and non-words have been used as treatment targets and both stimulus types have been shown to induce sound change in children with speech disorders (e.g. Morrisette & Gierut, 2002; Storkel, 2001); however, prior research on treatment efficacy has never directly compared real words to nonwords to see if one stimulus type provides better treatment outcomes than the other. Thus, the goal of this research program was to evaluate the role of word lexicality (i.e., word frequency) in effecting change in childrens’ sound systems. Eight children (7 male) with functional speech disorders were enrolled in a speech treatment program; four were treated using high-frequency real words and four were treated using [low-frequency] non-words. Using a multiple-baseline, across-subjects design, each child completed 19 treatment sessions. Probes were administered during treatment, as well as post-treatment, to monitor the sound change that occurred due to treatment. Children treated with real words demonstrated greater generalization of their treated sound to untreated words, as well as greater generalization of untreated sounds within the same sound class as their treated sound. These findings suggest that high frequency real words are easier to access and produce than non-words. Thus, the type and frequency of words used in speech treatment may affect treatment
outcomes in terms of sound generalization. The interactions between speech and language systems are an important issue for clinicians to consider when choosing treatment targets.

#236 1:30 pm

**Bilingual Multi-tasking Advantage: Evidence from an Online Language Processing Study**

Roberto S. Gutierrez, Speech, Language, and Hearing Sciences
Lewis Shapiro, Speech, Language, and Hearing Sciences

In bilingual language processing, first language (L1) interference has been substantiated in (L2) production by studying accents. Yet little is known about the effects of L1 on L2 comprehension. Here we examine the effects of one language (Spanish) on the other (English) at the interface of phonology and morpho-syntax when assessed by a task that measures implicit knowledge.

It has been shown that even after prolonged and extensive exposure to an L2, L1 phonology still affects the perception of second language sounds (Sebastián-Gallés & Soto-Faraco, 1999). Thus, phonological structures disallowed by phonotactic constraints of the L1 (in the present case, English) might impact processing of morpho-syntactic forms of the L2 (Spanish). Consider:

1. He asks the grumpy teacher for more time.

The [-skş] sequence in asks that results from the required subject-verb agreement in English in sentence (1) is not permissible in Spanish phonology; it never occurs. To assess the on-line sensitivity to phonotactically-constrained subject-verb agreement, we constructed a pitch change task (PCT) in which participants were asked to “listen for content and press a button as soon as you hear a localized change in pitch.” Reaction times (RTs) to the pitch change were recorded. In test sentences, the pitch was lowered over the adjective following subject-verb agreement (e.g., grumpy):

1. (2a) He asks the **grumpy** teacher for more time.
1. (2b) *He ask the grumpy* teacher for more time.

We predicted that RTs to the recognition of the pitch change would be slower in the presence of a localized ungrammaticality (2b) relative to a grammatical version (2a), due to increased processing loads. We examined monolinguals (controls; N=21), simultaneous bilinguals (bilingual from birth; N=8) and sequential bilinguals (native Spanish speakers who were first exposed to English at ~ age 6; N=10). Surprisingly, we found that phonological acceptability of the verb stem had no effect on how participants processed the sentences. We did, however, discover an interesting pattern that may have wider-reaching implications: both monolinguals and sequential bilinguals showed an effect of grammaticality (slower RTs in ungrammatical sentences) whereas the simultaneous bilinguals did not. We conclude that the simultaneous group did process the structure of the sentences, but perhaps due to an elevated ability to multitask, showed no interference effect from the pitch change task. Other researchers have found that bilinguals perform better than monolingual controls on non-linguistic multitasks (Costa et al. 2008, Bialystock, 2004). Thus, one interpretation of our findings is that very early exposure to two languages may drive the development of executive functions.

#237 1:45 pm

**Cerebral Perfusion and Language Therapy in Chronic Stroke Survivors with Aphasia**

Kathleen Brumm, Speech, Language, and Hearing Sciences
Tracy Love-Geffen, Speech, Language, and Hearing Sciences

Research supports the efficacy of language intervention for agrammatic aphasia (i.e. Robey, 1994; Robey 1998; Thompson 2000), however, a range of variability exists, both in patients’ behavioral and neural responses to treatment. This study investigates a potential source of variability, cerebral blood flow (CBF) and its relationship to sentence-level treatment outcomes among participants with agrammatic aphasia. Participants included a 56-year-old female (TR), 11 years post-stroke, and a 45-year-old male (WC), 5 years post-stroke, both with acquired aphasia who underwent 16 sessions of a linguistically-motivated therapy for agrammaticism, Treatment of Underlying Forms (TUF) (Thompson & Shapiro, 2005). TUF relies on the theory that training patients to use complex linguistic forms will lead to improvement in receptive and expressive abilities not only for the trained forms, but also for untrained structures which share similar underlying grammatical elements. In short, TUF therapy trains patients to produce linguistically complex object-relative constructions, expecting generalization for comprehension of these sentences, and for expressive and receptive performance for untrained but linguistically related object wh-questions. Each participant underwent multiple perfusion MRI examinations to quantify CBF before, during, and after treatment (see Wong et al., 1997 & Wong et al., 1999). Scan parameters were: TR = 3000 ms, TE = 3.1, TI1 = 600, 18 slices, each 6 mm thick (skip 1 mm), number of repetitions = 60, and FOV = 22 cm. CBF levels were calculated for each patient at the whole brain level, within a 2 voxel perimeter of each patient’s lesion, and within the homologous region in the unaffected hemisphere. Both patients demonstrated improved expressive and receptive abilities for complex and simpler linguistic structures, as predicted by the TUF hypothesis, with variability still evident between the patients. Additionally, both patients demonstrated increases in CBF from the first to the second scan time at the whole brain level and in the unaffected hemisphere. The finding of increased CBF concomitantly with treatment gains among these chronic stroke survivors is suggestive of patterns of CBF underlying and supporting linguistic processing in the context of language therapy. Results will be addressed in relation to theories of neural plasticity and language therapy.
Session B-9  
Oral Presentation: School Ethos  
Friday, February 27, 3:15 pm – 5:00 pm  
Location: Calmecac

#238  3:15 pm  
**Critical Thinking as an Independent Course in High School Curriculum**  
Reanne Brandt, Philosophy  
Steven Barbone, Philosophy

The quality of education that our children receive now is both a reflection of our future and the product of our past decisions. It guides them in becoming unique individuals and creative citizens. Because of the fundamental importance, it is our responsibility, the present individuals, the citizens, vigorously to assess and continually to revitalize the current educational curriculum and content standards. Critical thinking is a discipline that is vital to good reasoning skills in both education and life, and, notably, as an independent course, it is absent from current high school curriculum. By implementing a mandatory critical thinking course into the ninth grade curriculum, we can better serve the needs of students. However, there is dispute over the method by which to teach the subject. But, as this proposal demonstrates, there is an effective means, to develop and to insert an independent course into the curriculum as opposed to the current method of teaching it within the core coursework. Both the benefits of this solution and the impediments are addressed in this proposal. By analyzing the current ninth grade content standards, I have found paths available to implement this new course. By inquiring into the qualifications of secondary school teachers, I have found that they are prepared to teach critical thinking. Many students are forced to spend time and money on remedial courses in college. To an extent, this burden will be alleviated. There is no reason to postpone the course until college if the skills can be taught earlier in life to a wider range of students. Because students in the ninth grade are mature enough to be self-reflective, but also young enough not to be set in their beliefs, this is an ideal age to introduce an independent critical thinking class.

#239  3:30 pm  
**Factors that Prevent Biology Students at San Diego State from Entering the Major Within Two Years**  
Delnita Moore, Biology  
Estralita Martin, College of Sciences

There are twelve core classes students are required to pass with a grade of C or better before being admitted into the biology major at San Diego State University (SDSU). Six of the twelve classes have failure rates of 20-27%. Those classes were Biology 201A (Principles of Cell and Molecular Biology), biology 201B (Principles of Organismal Biology), chemistry 200 (General Chemistry), chemistry 231 (Organic Chemistry), math 121 (Calculus for the Life Sciences 1) and math 122 (Calculus for the Life Sciences 1). Chi-square analyses were used to determine if combined verbal and math SAT scores and/or where students lived prior to coming to SDSU were possible predictors to students failing these six classes thereby preventing them from being able to enter the major within two years. Neither of these parameters was found to be good predictors for the pass/fail rate of students attending SDSU.

#240  3:45 pm  
**A Closer Look: How Anti-War Texts Can Promote War**  
Joshua Peck, English  
Tracy Cummings, English

The traits we value as heroic in America make it almost impossible to create a truly anti-war text. Our ideas of heroism are often manifested in battle therefore, those who have not witnessed it firsthand tend to romanticize even its most gruesome and realistic depictions. For example, the mercy-killing of a grotesquely mutilated enemy soldier after one particular battle in Howard Bahrs novel The Judas Field is an attempt to deglorify war and give it a far more realistic and tragic face. Yet, the horrific detail used only perpetuates the idea that battle is the ideal proving ground for heroes because the characters act with what appear to be superhuman qualities. And as Chris Hedges points out, since even the most graphic depictions of war do not capture the debilitating fear which accompanies mortal danger, the only way to understand the true nature of battle in order to change this cultural perception is to live through it.

#241  4:00 pm  
**Using a Data-Driven Counseling Approach to Examine The Effects of a Conflict-Resolution Guidance Lesson on Elementary-Aged Students**  
Pedro Caro, Counseling  
Trish Hatch, School Counseling and Psychology

In this era of accountability facing the American school system, school counselors are moving toward more evidence-based practices in the attempt to present positive effects in students. Counselors’ roles have transformed significantly over the decades, shifting to a focus on using data to affect change in academic, career and personal/social development as benchmarks set forth by the American School Counseling Association’s (ASCA) National Model (ASCA, 2005). This study aims to determine whether the implementation of a data-driven prevention approach to conducting classroom guidance lessons on behavior will impact both perception data and results data. Research states that when
schools are safer, students learn better (Gibson, 2006). This study’s goal is to measure improvement in school climate in the hopes of providing long-lasting positive effects on students. In an inner-city elementary school, a teacher survey revealed that conflict resolution was the most common concern among third grade classes. Further research found that in the 2007-08 school year, 89 behavior-related referrals were given to third graders. A comprehensive guidance lesson was created that taught students the S.T.A.R. decision-making process (Stop, Think, Act, Review). The STAR process incorporated a series of steps that children could use when confronted with a number of school-related conflicts. The presentations were approximately 30 minutes long, spanning five classrooms. Each consisted of a power point lesson, a role-play activity and a video. Prior to the lessons, students were given pre-tests to examine prior knowledge, attitudes and skills and then post-tests after to assess learning. After the five lessons, data was gathered. Results indicated a 77% increase in students who could successfully identify a step in solving conflicts. Furthermore, there was an 88% decrease in behavior-related referrals during the months the lessons were presented compared to the same time last year without the lesson. It is suggested that this achievement-related (discipline) data will help to foster a positive learning environment for both students and teachers. Counselors have a role in creating change. Conducting similar lessons across different grade levels and further disaggregating existing data will allow counselors to target students who need further interventions and additional support.

Facing the Storm: Teaching Action Research in an Urban High School

John Patel, Education
Cristina Alfaro, Policy Studies in Language and Cross Cultural Education

This research examines the low motivation and achievement of bicultural students in urban schools as it relates to curriculum. It attempts to establish a framework for understanding student alienation from existing curriculum and necessary changes for establishing a more rigorous, purposeful, and captivating standards-based expository literacy program. It is a quasi-experimental study of freshman students at an urban high school in Southern California. This pilot-study asserts that the existing curriculum fails to validate student culture and does not equip learners with the necessary skills to apply literacy skills toward surmounting academic hurdles or addressing real problems in their community. Furthermore, it proposes that curriculum can be made relevant by engaging students in research methods that address their contextual reality and appeal to multiple modalities. The study examines the effectiveness of the critical literacy approaches or problemposing, participatory learning communities and action research. This study employs student surveys, classroom observation, a literature review, and ongoing quasi-experimental research.
#243 4:30 pm

Graduate Experience: Are We Meeting the Specific Needs of our Graduate Students?
Gennie Miranda, Education
Frank Harris III, Postsecondary Education

Forty to fifty percent of doctoral students in the United States leave their degree programs before completing them (Berelson, 1960; Bowen & Rudenstine, 1992; Golde, 2005; Lovitts, 2001; Tinto, 1993). Several studies that investigated the reasons for student departure from doctoral programs have identified numerous factors as predictors of doctoral completion, including academic and social integration, degree and quality of faculty-student relationship, student involvement, department culture, and peer interaction (Bair, Haworth, & Sandfort, 2004; Golde, 1996; Lovitts, 2001). According to Lovitts (2001), the more integrated students are in the department, the lower the students’ attrition rate is going to be. At the University of California, San Diego (UCSD), one-third of the doctoral students do not complete their degrees (UCSD, 2007). Results of the Graduate and Professional Student Experience Survey (GPSES) that was conducted in Spring 2005 showed that only 10% of graduate and professional students feel a connection to the campus community, and less than one-third find sufficient opportunities for involvement on campus (University of California, San Diego, 2007). At the Department of Electrical and Computer Engineering (ECE), the overall general and program satisfaction of graduate students were much lower than that of the general campus. During the 2007-2008 academic year, the ECE Department implemented a project to increase student integration and decrease student attrition for three reasons: (a) in response to the GPSES findings, (b) the significant attrition of ECE doctoral students (UCSD, 2007), and (c) on the basis of evidential support that students’ participation in departmental activities affects their attrition rates (Lovitts & Nelson, 2000). This project culminated with a subset of the GPSES being conducted in Spring 2008 to re-assess the experience of ECE graduate students. This oral presentation will provide an overview of this yearlong project and its outcomes. The results of the GPSES that was administered to ECE students in spring 2008 showed improved student experience and satisfaction. For example, in response to the statement My program makes an effort to foster a sense of community among its graduate students, 49% of students agreed compared to 28% in the 2005 survey. The strategies to improve increase student integration in graduate programs that will be offered in this session may prove effective in other graduate programs, thereby increasing Ph.D. completion.

#244 3:15 pm

Elucidating the Function of Alternative Reading Frame Protein (ARFP) in HCV
Michael Valdez, Biology
Roland Wolkowicz, Biology

HCV is the leading cause of liver cancer. A million new cases of this illness are identified each year. Thus, it is crucial to understand the viral life cycle in order to fight infection. We hypothesize that an ill-characterized protein(s) called F-protein(s) might be important to the life cycle of HCV. Evidence shows that F-protein is produced from an alternative reading frame (ARF) shift due to ribosomal slippage during the translation of core, the first protein of the HCV polyprotein. The F-protein may play a role in viral regulation of transcription and/or replication. We are in the process of expressing five ARF proteins based on the occurrence of stop codons in the different open reading frames of the viral genome. We have already constructed the first nine amino acids of core fused to the 116 amino acids of the second frame. This protein was produced as a myc-tagged protein for antibody detection purposes. Fusions will be performed with other ARF products. We will use retroviral technology to express those constructs in hepatocytic cell lines which are used as a target for HCV infection. We will then use retroviral technology to create stable cell lines expressing the different ARF proteins. These cells will be infected with an HCV virion produced in the laboratory. We will then analyze the effect the F-proteins have on the translation of core, replication rate, and viral infectivity. We envision that one or several of the F-products will indeed affect the rate of viral translation/transcription/replication. In this case, the F-product can be a novel target for drugs against HCV. Supported by the NIH/NIGMS SDSU MARC Program 5T34GM08303.

#245 3:30 pm

The Isolation and Characterization of Eosinophils in the Zebrafish
Octavio Romo-Fewell, Biology
David Traver, Biological Sciences (UCSD)

Eosinophils are leukocytes that belongs to the immune system. In humans, these cells are used as a diagnostic tool for inflammation and destruction of organs otherwise known as eosinophilia. For instance, asthma and allergy are clinical conditions in which eosinophils are central to their etiology. Although the
Abstr Acts

STUDENT RESEARCH SYMPOSIUM 2009

Kevin Hovel, Biology
Rachel Lannin, Biology
(Hippolyte) Spp.
(Heterostichus Rostratus) and Grass Shrimp
prey Interactions between Juvenile Giant Kelpfish
Effects of Seagrass Structure on the Predator-
juveniele giant kelpfish (Heterostichus rostratus) and Grass Shrimp
(Hippolyte) Spp.
Rachel Lannin, Biology
Kevin Hovel, Biology

Seagrass beds create refuge and foraging habitat for many organisms, including commercially and recreationally important fishes. Though it is well known that seagrass structural complexity influences the outcome of predator-prey interactions, there have been few studies that have looked at how the structure of seagrass habitats influence the behaviors of predator and prey species, which ultimately influence prey survival rates and predator foraging success. We quantified the habitat-survival function (HSF) for grass shrimp (Hippolyte spp.) exposed to fish predators (juveniele giant kelpfish (Heterostichus rostratus) foraging in eelgrass (Zostera marina) habitat and also quantified how behaviors of shrimp and fish varied with seagrass structural complexity. Shrimp were exposed to fish in flow-through seawater tanks in which 6 different eelgrass shoot densities (20, 40, 80, 160, 250, and 320 shoots/m2) were established. We observed fish and shrimp for 1 h from behind a blind and the proportion of time fish spent in different behaviors, shrimp escape behavior, and the proportional survival of shrimp were recorded. The HSF was hyperbolic, revealing that at lower shoot densities, the proportional survival of shrimp increased rapidly. Although the reaction of the shrimp to the kelpfish followed no trend with increasing seagrass densities, the total time spent swimming by the fish was positively correlated with eelgrass shoot density. Surprisingly, the proportion of successful strikes did not vary with eelgrass structure. Our study can serve as a launching point for further investigations on the affects of seagrass structure on predator-prey behaviors.

#247 4:00 pm

Increased Eye-Blink Rate in Autism Spectrum Disorder May Reflect Dopaminergic Abnormalities
Brent V. Jensen, Psychology
Ralph-Axel Mueller, Psychology

Background: Elevated blink rates have been related to over activity of the central dopaminergic systems (Karson, 1983). In the only existing study of eye-blinks in autism spectrum disorder (ASD), Goldberg et al. (1987) found elevated blink rates in low-functioning children with ASD as compared to typically developing (TD) and developmentally delayed groups, suggesting that ASD may be associated with hyperactivity of the dopaminergic systems. While treatment success has been reported for dopamine blockers, definitive evidence regarding dopaminergic abnormalities in ASD is unavailable (Lam et al., 2005). Objectives: To examine blink rates in a group of high-functioning children with ASD in an effort to further elucidate potential abnormalities in dopaminergic activity. It was hypothesized that children with ASD would have higher blink rates compared to TD children. Methods: Participants were 14 children with ASD and 11 age- and NVIQ-matched TD children. Blinks were recorded during an Embedded Figures Test (EFT) using a binocular eye-tracking system. Time was divided into task (from trial onset until participant response) and inter-stimulus interval (ISI; from participant response until subsequent trial onset) for analysis of blink rates. Results: In the EFT, significant findings included a main effect of group and a condition (task, ISI) by group (ASD, TD) interaction. The ASD group had significantly higher blink rates than the TD group during the ISI, though not during task. Conclusions: Our findings show increased blink rate during task-free periods, which may suggest increased dopaminergic activity in children with ASD.

#246 3:45 pm

Effects of Seagrass Structure on the Predator-prey Interactions between Juvenile Giant Kelpfish (Heterostichus Rostratus) and Grass Shrimp (Hippolyte) Spp.

Seagrass beds create refuge and foraging habitat for many organisms, including commercially and recreationally important fishes. Though it is well known that seagrass structural complexity influences the outcome of predator-prey interactions, there have been few studies that have looked at how the structure of seagrass habitats influence the behaviors of predator and prey species, which ultimately influence prey survival rates and predator foraging success. We quantified the habitat-survival function (HSF) for grass shrimp (Hippolyte spp.) exposed to fish predators (juveniele giant kelpfish (Heterostichus rostratus) foraging in eelgrass (Zostera marina) habitat and also quantified how behaviors of shrimp and fish varied with seagrass structural complexity. Shrimp were exposed to fish in flow-through seawater tanks in which 6 different eelgrass shoot densities (20, 40, 80, 160, 250, and 320 shoots/m2) were established. We observed fish and shrimp for 1 h from behind a blind and the proportion of time fish spent in different behaviors, shrimp escape behavior, and the proportional survival of shrimp were recorded. The HSF was hyperbolic, revealing that at lower shoot densities, the proportional survival of shrimp increased rapidly. Although the reaction of the shrimp to the kelpfish followed no trend with increasing seagrass densities, the total time spent swimming by the fish was positively correlated with eelgrass shoot density. Surprisingly, the proportion of successful strikes did not vary with eelgrass structure. Our study can serve as a launching point for further investigations on the affects of seagrass structure on predator-prey behaviors.

#249 4:15 pm

Mechanical Properties of Simulated Temporary Cross-linked F-actin Polymer Networks
Rita Philavanh, Physics
Arlette Baljon, Physics

Mechanical force plays an essential role in the physiology of the cell. The mechanical properties of the cell are predominantly determined by the properties of the polymeric (F) actin in the cytoplasm. The F-actin is cross-linked by actin binding proteins into
reversible networks that make up the cytoskeleton. The Baljon lab has constructed code to model polymeric networks in which crosslinks are nonpermanent. The model has been employed to study the network microstructures at rest. This code will further be used to study the viscoelastic properties of these networks from their response to external stresses. The results will be compared with those observed in experiments of F actin networks. In particular we are interested in findings of the Weitz lab indicating that there is a strong increase in the elasticity of a stressed F-actin network compared to an unstressed one. An explanation for this type of non-linear response is still lacking. Investigations of the microstructure of our model networks might provide new insight, which is crucial to our understanding of the cell. Due to the presence of motor proteins, the cytoskeleton is believed to operate in this non-linear regime.

Session B-11
Oral Presentation: Politics and Policy
Friday, February 27, 3:15 pm – 5:00 pm
Location: Council Chambers

#250  3:15 pm
Restoring the American Dream for Black Males
Funmilayo A. Akinmulero, Accounting
Yvonne Gastélum, Political Science

The inadequacy of fundamental sociological variables, such as socioeconomic status and access to education, create higher vulnerability in African American males to commit crime in the United States. Furthermore, this greater susceptibility to commit crime tends to result in a disproportionate rate of imprisonment for African American males. This is problematic to the United States a democratic nation when certain groups are systematically targeted due to the insufficient nature of several key sociological variables. The government is therefore justified in intervening, by positively improving the state of those variables which create the increased vulnerability of crime commission. In doing so, the prospects for African American males can be renewed, ultimately restoring their ability to participate fully as citizens in the United States. This presentation will analyze and discuss the types of sociological variables which create higher susceptibility to committing crime in African American males in the United States.

#251  3:30 pm
The Cannabis Legalization Continuum: A Look at the Industrial, Medical and Recreational Uses of Cannabis
Bryan FitzGerald, Political Science
Brian Adams, Political Science

Cannabis prohibition places tens of millions of Americans in direct confrontation with the law. While billions of dollars in sales go untaxed, our government spends taxpayer money to arrest, try, and imprison non-violent offenders. This paper analyzes the industrial, medicinal, and recreational uses of the cannabis plant and finds that the effect of prohibition has netted more societal harm than the acts it attempts to eliminate. This conclusion is drawn after examining the different perspectives of the drug legalization continuum by considering the rival scholarship, activist, and government positions. With a myriad of conflicting local, state, and federal laws and millions of lives in the balance cannabis policy is quickly becoming a national issue that merits significant attention.

#252  3:45 pm
Obligation, Agreement, and Paternalism
Jonathan Hecht, Philosophy
J. Angelo Corlett, Philosophy

For contemporary legal philosophers, whether one is, and what makes one, obligated to obey the law is a matter of great importance. In this paper, I shall attempt to list the conditions that entail a general prima facie obligation to obey the law, those that are sufficient conditions, and how certain factors, in this case paternalism, can increase the degree of obligation once the sufficient conditions have been met. One of the main contributions of this project is that it makes the discussion of paternalism not only relevant, but essential, to the grounding of legal obligation.

#253  4:00 pm
Spinoza on the Civil State and its Security
Mikhail (Mike) Parnes, Philosophy
Steven Barbone, Philosophy

Baruch Spinoza, a seventeenth century philosopher, built a system that has much to say about the United States’ energy policy. Spinoza’s three major works were used to show what Spinoza had to say about the metaphysics of the individual, the state of
nature, the civil state, the best civil state (democracy), the civil state’s leadership, relationships among commonwealths, and how this pertains to the US energy policy. Statistics used in support of the project’s thesis were cited from the US Energy Information Administration. Other claims in support of the thesis were supported by information cited from the US State Department and the US National Debt Clock. The conclusion of the project is that the US must strive to sever its relationship with Saudi Arabia to best protect its security and peace.

#254 4:15 pm

**A Spinozan Critique of Competing American Political Theories**

John Bell, Philosophy  
Steven Barbone, Philosophy

I attempt here to provide a plausible argument that had the 17th century naturalist philosopher Benedict Spinoza been somehow able to vote in this past election on November 4th 2008, he would have chosen Barack Obama above all other candidates. I will further argue that the dissimilarity between Obama and the leading runner-up, Senator John McCain, and their respective tax-policy plans alone would have been enough for him to favor Obama. In support of these claims, I will offer evidence supporting the notion that Spinoza’s writings in the *Tractatus Theologico-Politicus* and the *Tractatus Politicus* lend credibility to this theory. This will include support from commentators of Spinoza who interpret his theory of psychological egoism as leading naturally to a normative political theory which emphasizes the importance of sociality over that of self-interest as an end in itself without any intentional and coinciding social benefit. A logical formulation of my thesis could be described in the following way: P1) Spinoza specifically prescribes a political philosophy which promotes the common good. P2) Spinoza advocated virtue in the sense of self-interest, but self-interest includes doing what is best for others insofar as it promotes your own actual self-interest. P3) Obamanomics promotes the common good more than McCain’s economic strategy or that of any other candidates. Conclusion: Spinoza would have voted for Obama. It is hoped that after reading this thesis paper, the reader will be convinced not only that Spinoza would have supported Obama, but that serving the common good in the form of tax policies and social programs which emphasize a healthy middle class are in fact in the best interest of this country as a whole. I believe that I have presented here a highly plausible and sound argument in a manner that does not come across as either naïve or politically partisan.

Session B-12  
Oral Presentation:  
Computer Science and Applied Mathematics  
Friday, February 27, 3:15 pm – 5:00 pm  
Location: Presidential Suite

#255 3:15 pm

**Factorization in Integral Matrix Semigroups**

Donald Adams, Mathematics  
Vadim Pomonarenko, Mathematics

Factorization theory is a prominent field of mathematics; however, most previous research in this area lies in the commutative case. Noncommutative factorization theory is a relatively new topic of interest. This paper examines the factorization properties of noncommutative atomic semigroups of integral matrices. In particular, semigroups with determinant conditions, triangular matrices, rank 1 matrices, and bistochastic matrices are studied with the operation of multiplication and, in a special case, addition. The authors find invariants of interest in factorization theory such as the minimum and maximum length of atomic factorizations, elasticity of the semigroups, and the delta set of the semigroups.

#256 3:30 pm

**The Effects of Amplitude Modulation and Higher Harmonic Detection on Obtaining Hyperfine Spectra**

Miguel Villalobos, Physics  
Richard Morris, Physics

Harmonic detection is a viable form of clearly detecting very small signals. Such small signals are the ones associated with hyperfine spectra. The purpose of this is twofold. The first is to use 2nd harmonic detection to obtain the hyperfine spectra of Iodine. The second is to determine which modulation amplitude gives the best positioning of the hyperfine spectral lines. In this project we were able to identify the hyperfine spectra of Iodine. We focused on the absorption spectra of P(33) 6-3, at 15797.98 cm⁻¹. The method of saturation spectroscopy was employed. A total scan time of 62.5 seconds and this allowed an average percent error of 1.8 % (in comparison to published values). We concluded that the modulation amplitude of 5 MHz peak to peak gave the best positioning of the lines. We were able to show a relationship between the width of the lines and the modulation amplitude. The width of the peaks increased as the modulation was increased. By retrieving the hyperfine spectra of R(38) 6-3, at 15798.76 cm⁻¹,
we have shown that the resolution of our set-up is 4.4 ± 0.4 MHz. This resolution was obtained when our total scan time was set to 250 seconds. With our set-up we were able to identify a total of seven absorptions lines that lie between 15798.76 cm⁻¹-15797.59 cm⁻¹; R(38) 6-3, P(53) 8-4, R(59) 8-4, R(39) 6-3, P(33) 6-3, P(54) 8-4, and R(60) 8-4.

#257 3:45 pm
Non-Linear Deformable Registration for Shape Based Interpolation of Knee and Cartilage Images
Ashish Varma, Computer Science
Usha Sinha, Physics

Problem Statement: To implement and evaluate a shape based interpolation algorithm using deformable registration of knee and cartilage Magnetic Resonance images. Statement of methods: A method is presented to interpolate between neighboring slices in the gray level dataset of a volume of cartilage images. An intensity based non-linear deformation algorithm was applied to consecutive slices to obtain corresponding points in the slices. The deformation fields from a stack of slices were also smoothed along the slice direction to provide a smooth shape deformation estimate. The intermediate slice between any two slices was then calculated by bicubic interpolation of the intensities of corresponding points on the two slices (estimated by linear interpolation of the deformation fields). Interpolated slices were smoothed prior to evaluation. Data used here was downloaded with permission from the public access database: Osteo-Arthritis Initiative, which is a multi-institutional longitudinal study of osteoarthritic and normal subjects. The interpolation method was applied to images of the entire knee as well as to the segmented cartilage. Alternate slices were removed to provide references for evaluation. Evaluation was performed by comparing an acquired slice to an interpolated slice using visual, RMS of intensity differences, and a 2D residual distance error estimate. Results: Data from 3 subjects was interpolated and a total of 60 slices were evaluated. The visual evaluation of the interpolated cartilage slices show that they closely follow the contours of the reference slices in contrast to routine intensity based interpolations that have shadow artifacts in slices where the shape is changing rapidly. Quantitative evaluation is underway for the whole knee and the cartilage images. Conclusion: The intensity based non-linear deformation algorithm is ideally suited for extracting corresponding points in adjacent slices of a volume. This deformation can be linearly interpolated to obtain corresponding points in the interpolated slice. Unlike other shape-based interpolations, the current method does not require the region of interest to be segmented. Future Plans: We propose to apply this method to interpolate knee MR images to create statistical T2 Atlases of the cartilage from population cohorts with and without osteoarthritis to automatically detect spatial patterns of T2 differences.

#258 4:00 pm
Collaboration-oriented Data Recovery for Mobile Disk Arrays
Abhinav Sharma, Computer Science
Dr. Tao Xie, Computer Science

Mobile disk arrays, disk arrays located in mobile data centers, are crucial for mobile applications such as disaster recovery, live video broadcast, and homeland security. Due to their unusual application domains, mobile disk arrays face several new challenges including harsh operating environments, very limited power supply, and extremely small number of spare disks. Consequently, data reconstruction schemes for mobile disk arrays must be performance-driven, reliability-aware, and energy-efficient. Unfortunately, most existing data reconstruction schemes have been devised for traditional stationary data centers, and thus, overlooked the new challenges. In this paper, we develop a flash assisted data reconstruction strategy called CORE (collaboration-oriented reconstruction) on top of a hybrid disk array architecture, where hard disks and flash disks collaborate to shorten data reconstruction time, alleviate performance degradation during disk recovery. Experimental results demonstrate that CORE noticeably improves the performance and energy-efficiency over existing schemes.

#259 4:15 pm
Hedging Weather Derivative Basis Risk
Scott Nelson, Mathematics and Statistics
Barbara Bailey, Mathematics and Statistics

Weather derivatives are a recently developed financial product that can be used to protect against weather risk, where weather risk is defined as a loss in revenues attributable to the weather. The payoff from a weather derivative contract is tied to the observed weather index at a certain weather station during the contract period. At this time only certain cities have fully developed and liquid weather derivative contract markets. A market participant wishing to hedge weather risk not located at one of these markets would most likely choose to purchase weather derivative contracts for the liquid market with the most highly correlated weather index. The hedge ratio is the number of
contracts needed to be purchased at the liquid location to hedge a unit of weather risk at the illiquid location. The standard approach to calculating the hedge ratio is to calculate the historical correlation between the weather indices for the two cities. In this research we propose an alternative, model-based approach to estimating the hedge ratio. We choose to directly model the joint distribution of the daily temperature series for two cities (Dayton and Chicago) using a vector autoregression (VAR). By using a model-based approach we show that we can obtain hedge ratio estimates that are not only more accurate, but which can also be easily updated during the contract period.

#260 4:30 pm
A Graph Search Algorithm for Following Delphinid Whistle Contour
Bhavesh Patel, Computer Science
Marie Roch, Computer Science

Automatic detection and identification of groups of dolphins is important for the comparison of behavior involving a population of wild dolphins. Traditional visual monitoring methods such as photo-id approach have limited applicability as dolphins may be at longer distance. In order to overcome this problem the acoustic monitoring approach is adopted where whistles made by dolphins are exploited. Dolphin whistles have typically been characterized in terms of their frequency as a function of time, which is also referred to as whistle contour. A frequency domain based graph search algorithm is developed for extracting the frequency/time contours in a fully automated manner. The algorithm is capable of tracking multiple contours simultaneously. Search is done in the spectral domain, with contours being treated as paths through a phase-magnitude space. A graph search formalism is combined with dynamic programming techniques to track candidate paths that may overlap or cross. Disambiguation of path crossings is accomplished by examining a combination of slope and the derivative of phase. The algorithm is general in nature and applicable to tonal calls from many animals with little modification. We target this work specifically towards delphinid whistles and demonstrate its efficacy on calls from spinner dolphins (Stenella longirostris), bottlenose (Tursiops truncatus), short- and long-beaked common (Delphinus delphis and D. capensis), and Risso's (Grampus griseus) dolphins recorded in the Southern California Bight. The preliminary results of applying these techniques to a population of spinner dolphins (courtesy Simone Baumann and John Hildebrand, Scripps Institution of Oceanography) demonstrates that approximately 90% of whistle contours were successfully detected in an audio record of 9 minutes. The method will permit analysis of whistles based upon shape as well as accelerating the collection of traditional whistle contour statistics such as number of inflection points, minimum frequency, maximum frequency, etc. The detection and identification of dolphin whistles contour would provide a useful means for the long term surveillance of dolphin activity patterns such as socializing, traveling, resting and feeding.

Session B-13
Oral Presentation: Cultural Studies
Friday, February 27, 3:15 pm – 5:00 pm
Location: Quetzalcoatl A

#261 3:15 pm
Research Proposal for “Cultural Adjustments for Sojourners Living in China”
Hongmei Lin, Communications
Chuck Goehring, Communications

Living in a new country and culture can be exciting, fulfilling, and stimulating. It can also be frustrating and confusing. For foreigners who want to live in China, also known as sojourners, it is critical that they learn about the Chinese political system, its cultures, customs, and languages. For purposes of this study, sojourners can be defined as temporary residents who voluntarily go abroad for set periods of time that is usually related to task-based or instrumental purposes (Ting-Toomey & Chung, 2005, p. 123). Cross-culture adaptation is defined as the entirety of the phenomenon of individuals who, upon relocating to an unfamiliar sociocultural environment, strive to establish and maintain a relatively stable, reciprocal, and functional relationship with the environment (Kim, 2001, p.31). My research is intended to study the language barriers and cultural issues faced by sojourners in the process of cultural adaptation and the strategies they use to overcome them. Three research questions guide my study: RQ 1: To what extent do language barriers affect sojourners cultural adaptation in China? RQ 2: What are the main cultural issues influencing sojourners cultural adaptation in China? RQ 3: What coping strategies do sojourners use in their cultural adaptation? Methods: This research will be conducted by qualitative interviewing. Data will be collected in three major cities in China, Beijing, Shanghai and Hangzhou, with 45 sojourners. These participants include international students and overseas workers. They are of different age groups and from different countries.
#262 3:30 pm

**Does Language Make a Difference? Assessing the Legitimacy of Bullying in Hispanic Acculturation**

Derek Hyman, Public Health  
Audrey Hokoda, Child and Family Development

**Objectives:** In 2003, Yu et al. described acculturation as a critical mediating factor in adolescents adaptation to their environment. It was shown that adolescents not speaking English at home had higher risks of being bullied. There has been little research conducted on Hispanic acculturation and attitudes towards bullying. This study utilizes responses to a self-report survey to assess both student and parent perceptions of the legitimacy of bullying. This study explores the relationships of contemporary residents of Sierra San Francisco and neighboring ranches to the archaeological cultural resources of the region. Results are based on preliminary findings gathered through exploratory interviews, discussions and observations. Scattered across this expansive terrain of rising mountains, plunging canyons, and mesquite covered mesas are ancient testaments to past indigenous occupation. Strangely shaped flaked obsidian objects and deeply-worn milling stations are common; however, the most spectacular objects of antiquity to be observed are the indigenous cave paintings dating back thousands of years. UNESCO and INAH both describe these sites as valuable cultural heritage. While the majority of people in this area are ranchers, in recent decades they have come to be increasingly reliant upon the tourism generated by these paintings. Despite this reliance, there is a disconnection between the rancheros and the past represented through these relics of the ancient Cochimi. The ranchers have no local museum. Skillfully produced lithic artifacts are often proudly displayed by locals upon the walls of their homes and within their school, but the residents have little knowledge regarding the processes through which these artifacts were created. The ancient large-scale wall murals were applied in vibrant reds and deep shades of black through the precise strokes of expert hands. However, there are few rancheros that have received any education, formal or informal, as to what the images and forms might represent and why. The rancheros generally state that they share neither cultural nor genetic continuity with the indigenous Cochimi. This raises the question, what defines the authentic relationship between past and present? The space within which these residents pass their daily existence is largely defined and valued by outsiders, and insiders alike, in terms of its relationship with a mysterious history. Artifacts of the past are given new meaning through cultural narratives and daily practices in the present. Local tour guides and residents would be greatly benefited by both the establishment of a local museum and greater education in the archaeological heritage that shares the space surrounding their daily existence.

#263 3:45 pm

**Touring Visible Spaces and Histories Forgotten: A Study of Cultural Resources in Sierra San Francisco, BCS, Mexico**

Adam Giacinto, Anthropology  
Frederick Conway, Anthropology

This study explores relationships of contemporary residents of Sierra San Francisco and neighboring ranches to the archaeological cultural resources of the region. Results are based on preliminary findings gathered through exploratory interviews, discussions and observations. Scattered across this expansive terrain of rising mountains, plunging canyons, and mesquite covered mesas are ancient testaments to past indigenous occupation. Strangely shaped flaked obsidian objects and deeply-worn milling stations are common; however, the most spectacular objects of antiquity

#264 4:00 pm

**Children of Poverty: Escape through Performance**

Dominic Abbenante, Geography  
Stuart Aitken, Geography

Adolescence is a harbinger of emotional unpredictability. Throughout the formative years, children experience transformative emotions. The inability to direct this surge of unfamiliar feelings can manifest itself though socially deviant and self-destructive behaviors in the absence of adequate coping mechanisms. Particularly abundant in children of poverty, who often lack familial, community, and scholastic resources necessary to moderate these psychosomatic waves, the necessity for a constructive outlet is essential to maintain a balanced mental well-being. My work examines performance as an effective and inexpensive means for these children to confront and nurture the mysterious and often overwhelming pubescent emotions in a supportive environment. I look at how the foundational frameworks of community and academic programs cultivate and affect youth self-identity and social-networks through freedom of
expression and performance; with particular focus on the creation of concrete (re)presentations of society through personal association and perception in both the individual and group. Positive correlations are sustained through lower rates of violence and higher scholastic achievement and test scores, resulting in an improved capacity for upward economic mobility. I stress the potentiality of fine arts programs as an instrument necessary for emotional and psychological health, and as a method though which to escape the grip of poverty.

Session B-14
Oral Presentation:
Socio-Ecological Correlates of Health
Friday, February 27, 3:15 pm – 5:00 pm
Location: Quetzalcoatl B

#265 3:15 pm
Predictors of Disease-management and Glycemic Control among Latinos with Type II Diabetes: A Social-ecological Perspective
Addie Brewer, Psychology
Linda Gallo, Psychology

Although active diabetes self-management is required to achieve glycemic control and prevent serious health complications, many individuals fail to adhere to self-management recommendations. In particular, adherence and health outcomes are poor among ethnic minorities, including Latinos. Research shows that individuals who report greater social-environmental support related to illness manage their diabetes more effectively than those with less support. Natural support systems may play an especially important role in disease-management among Latinos, due to the cultural value placed on personal relationships (i.e., “personalismo”) and family (i.e., “familismo”). We examined the concurrent relationships between support for disease-management (SDM), adherence to a diabetes self-care regimen (DSC), indicators of health-risk, and depression among 170 Latinos with Type II diabetes. Participants were recruited from low-income serving community clinics in San Diego County, and ranged in age from 21 to 75 years (M = 50.81, SD = 10.69); 72% were female, and 87% were born in Mexico. Controlling for age, participants who perceived greater SDM from their neighborhood/community, family and friends, and self (i.e., personal SDM) also reported better adherence (i.e., blood-glucose monitoring, diet, exercise and foot care; Adjusted $R^2 = .33$, $p < .001$) and less depression (Adjusted $R^2 = .09$, $p = .001$). In turn, depression was positively associated with HbA1c (i.e., an integrated marker of blood glucose control, where higher levels indicate worse control; $r = .16$, $p < .05$), while SDM from the neighborhood/community was inversely related to body mass index ($r = -.15$, $p < .05$), and serum triglycerides ($r = -.16$, $p < .05$). These findings demonstrate that SDM can influence health directly, as well as indirectly, via associations with adherence and psychological well-being. Programs targeting diabetes self-management should assume a social-ecological perspective that considers multi-level influences on adherence. In addition, given the strong cultural emphasis on personal relationships and family connectedness among Latinos, interventions to improve glycemic control and more distal health outcomes should recognize the strong influence natural support systems have on patients’ implementation of diabetes self-management strategies.

#266 3:30 pm
High Risk of Binge Eating Disorder among California Women of Korean Descent
Veronica Irvin, Public Health
Richard Hofstetter, Political Science

Purpose: Binge eating disorder is characterized by recurring and frequent episodes of consuming large amounts of food not followed by a compensatory behavior such as vomiting, use of diuretics, or extreme exercising. The population of Koreans in the US has increased over the last several decades. However, few studies have reported binge eating outcomes among Asian women let alone Korean women. The purpose of this presentation is to report prevalence of binge eating and assess its correlates among California women of Korean descent. Methods: Secondary data analyses were conducted using a bilingual telephone survey among a representative sample of adult Korean women residing in California (n=591). The Eating Disorders Examination Questionnaire (EDE-Q) assessed the prevalence of self-reported disordered eating attitudes and behaviors. Following prior research, at risk for binge eating disorder was defined as more than one episode of binge eating with loss of control over past 28 days. Results: The prevalence of binge eating was high but decreased across age groups with 51.9%, 47.9%, 43.8% and 33.3% for 18-34, 35-49, 50-64, and 65+ ages, respectively. Predictors of binge eating differed by age. Across the four age categories, binge eating was regressed on years of education, employment status, acculturation level, BMI, a global scale of disordered eating attitudes, social support and partner insisted on sex but did not use physical force, an indicator of mild sexual coercion. Among the youngest cohort, binge eating was significantly 3 times higher among those with disordered eating attitudes, and 6
times higher among the sexually coerced, although not statistically significant. Among the 35-49 cohort, binge eating was significantly related to higher levels of disordered eating attitudes, higher levels of social support, and the sexually coerced. Among the 50-64 cohort, only employment outside the home significantly related to diminished binge eating. Conclusions: Korean women in CA reported a higher prevalence of binge eating than U.S. averages. Further qualitative and quantitative research is needed to confirm and explain the causal pathways of the relatively high rates of binge eating. If these high rates remain, age-specific outreach services should be provided to women of Korean descent.

**#267 3:45 pm**

**Correlates of Unprotected Sex with Female Sex Workers Among Male Clients in Tijuana, Mexico**

Shira Goldenberg, Public Health
Stephanie Strathdee, Public Health

Background: Tijuana, situated adjacent to San Diego, CA on the US-Mexico border is experiencing an emerging HIV epidemic, with HIV prevalence rising from <1% to 6% in recent years among female sex workers (FSWs). In contrast, no systematic data has been collected from FSWs male clients. We explored correlates of unprotected sex with a FSW among their clients in Tijuana.

Methods: In 2008, males from San Diego (N=189) and Tijuana (N=211) aged 18 or older who had paid/traded for sex with a FSW in Tijuana during the past 4 months were recruited in Tijuana's red light district, where prostitution is tolerated. Men underwent interviews and rapid testing for HIV, syphilis, gonorrhea, and Chlamydia. Results: Of 394 men, 198 (50.2%) reported unprotected vaginal/anal sex with FSWs in Tijuana in the past 4 months. Compared to clients who did not report unprotected sex with FSWs in Tijuana in the past 4 months, men who reported unprotected sex with FSWs were significantly more likely to report a longer mean history of sex with FSWs (12.3 vs. 9 years), more FSW partners in Tijuana (36 vs. 12%); they were also significantly more likely to report recent sex with a male partner (32.8 vs. 17.3%), Factors independently associated with recent unprotected vaginal/anal sex with a FSW in Tijuana were recently being under the influence of drugs during sex (OR: 3.1, \( p<0.0001 \)), visiting the same FSW (OR: 2.3, \( p=0.0003 \)), being married (OR: 1.5, \( p=0.0507 \)), and being unemployed (OR: 1.6, \( p=0.0482 \)). Conclusions: FSWs' clients represent a transmission bridge for STIs/HIV through unprotected sex with FSWs, wives and other partners. Urgent action is required to include them in risk reduction interventions, including promotion of consistent condom use, particularly within the context of drug use, as well as spousal and regular sexual relationships with FSWs.

**#268 4:00 pm**

**Leave or Stay: Behavioral Ecology of Preteens Response to Secondhand Smoke**

Ding Ding, Public Health
Melbourne Hovell, Public Health

Children's exposure to secondhand smoke (SHS) is associated with many illnesses, and might also increase risk for smoking initiation. Exposure can be reduced through behavior change by both children and smokers, but most studies have focused only on the latter. The current study examines childrens' behavior (staying or leaving) in the presence of SHS. Cross-sectional data were obtained from a study on SHS reduction in San Diego, California. Families with a child 8-13 years of age and at least one smoker were included in the study (N=388). Preteens were asked who smoked the most around them (primary source), and whether they stayed or left the last time this person smoked. Urine cotinine (a metabolite of nicotine) was assayed and served as a biomarker of recent exposure. Students t-test was used to compare mean cotinine level in preteens who stayed vs. left the last time they were exposed. Logistic regression was used to examine predictors of staying or leaving the smoker. Nearly half (43%) of the preteens reported mother as the primary source of SHS, 30% reporting father, 10% grandparent, and 17% another relation. Last time when this person smoked, 73% preteens left the smoker, while 27% stayed. Preteens who left the smoker had lower geometric mean cotinine levels (2.10 vs. 3.01 ng/mL, \( p=0.026 \)). Results showed that preteens were more likely to stay in the presence of a smoker when they were more physically mature, had tried smoking themselves or were susceptible to smoking, or had parents who prompted preteens to bring cigarettes to them when they smoked. Preteens whose friends were opposed to breathing other peoples smoke were less likely to stay with the smoker. Reducing childrens' SHS exposure is a public health priority. This study was the first to examine the behavior of children who were exposed to SHS in the presence of a smoker. Results suggest that leaving the smoker was associated with lower SHS exposure. This behavior was influenced by several factors, including physiological development, behavioral history, and parental and friend influence. These factors inform interventions to promote children to leave the area when smoking occurs.
#269  4:15 pm
Exploring the Relationships Between Dengue Fever Knowledge and Aedes aegypti Breeding in St. Catherine Parish, Jamaica: A Pilot of Enhanced Surveillance
Justin Stoler, Geography
Stephanie Brodine, Public Health

Dengue fever has re-emerged as an increasingly significant global health threat amid diminishing resources pledged for its control in developing nations. Efforts to limit breeding of the dengue vector Aedes aegypti are often hampered by lack of community awareness of the disease. Sixty-eight households in St. Catherine Parish, Jamaica completed a knowledge, attitude, and practice (KAP) questionnaire as part of a routine container survey for presence of Ae. aegypti larvae. Infestation levels were high according to traditional Stegomyia indices (Breteau Index = 325), however general knowledge of dengue symptoms, Ae. aegypti breeding sites, and preventive practices was low. After examining the links between demographic characteristics, dengue knowledge, and the number of breeding sites per house, higher educational achievement was associated with higher dengue knowledge, but also with more unprotected containers. Overall dengue knowledge was not associated with household container counts. Spatial statistics identified weak clustering of larvae-positive containers, and larvae were concentrated in three key container types. Residents may only understand the role of certain container types, and significant gaps in general knowledge of the disease may inhibit vector control. This pilot demonstrates the feasibility of conducting inexpensive, rapid assessment of community knowledge and breeding levels for local governments lacking the resources for a more methodologically robust vector assessment strategy.

Session C-1
Poster Presentation: Analytical Chemistry II
Friday, February 27, 5:15 pm – 6:45 pm
Location: Montezuma Hall South

#270  5:15-6:45 pm
Ultrasonic Nonlinear Laser Wave-mixing Spectroscopy for Chem/Bio Agents
Marc Gregerson, Chemistry
William Tong, Chemistry

Background: We present nonlinear wave-mixing spectroscopy as an ultrasensitive detection technique for a variety of compounds in liquid and solid-phase samples. Wave mixing is an absorption-based method that has several inherent advantages including excellent sensitivity, small sample requirements, short optical path length, and high spatial resolution. Wave mixing can use both fluorescing and non-fluorescing analytes, therefore, one can detect chemicals in their native form without the use of tags and labels. For more background information on laser wave mixing, please see the following TongLab papers: Analytical Chemistry, 2004, 76, 6, 1788-1792; Spectrochimica Acta, Part B, 2004, 59, 967-973; Applied Spectroscopy Cover Article, 2003, 12, 1455-1460. Method: Wave mixing is a versatile nonlinear multi-photon absorption-based method for the analysis 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 is a detection technique easily coupled to sample introduction systems such as chromatography, capillary electrophoresis, flowing liquid or gas injection systems. In the work presented here, we have detected proteins, chem/bio agents and gaseous analytes. Results: The wave-mixing signal has the same optical characteristics as the incident laser beams, which makes the collection of the signal relatively simple. Wave mixing allows for extremely sensitive detection across all sample types. The limits of detection of wave mixing assays are orders of magnitude better than those of standard absorption techniques. Conclusion: This method of detection offers many desirable features including higher sensitivity compared to conventional detection methods and remote standoff detection capability. Future studies will include the investigation of larger gaseous organic molecules and mid-IR lasers as light sources for wave mixing. Acknowledgments: We gratefully acknowledge support of this work by National Institute of General Medical Sciences (R01), National Institutes of Health, National Science Foundation, U.S. Department of Defense (CCAT), Lockheed Martin, Varian, Beckman, CSUPERB and Johnson & Johnson.

#271  5:15-6:45 pm
Sub-doppler Sensitive Isotope Analysis Based on High-resolution Nonlinear Laser Wave-mixing Spectroscopy
Wendy Lyons, Chemistry
William Tong, Chemistry

Background: Non-intrusive sensitive laser-based methods for detecting explosives from a distance have become the focus of a new research field in recent years. We present high-resolution Doppler-free wave-mixing spectroscopy as a sensitive tool for isotope analysis. Method: Solid-state diode lasers allow one to interface a relatively compact multi-photon Doppler-free nonlinear laser detection system to a variety of popular atomizers. Small laser probe volumes (i.e., picoliter) with corresponding small sample requirement allow high spatial resolution. Doppler broadening is reduced by using counter-propagating input laser beams, resulting in high spectral resolution. Conventional
ABSTRACTS

isotope detection methods, such as mass spectrometry, require relatively bulky and expensive instruments and they are not portable. Results: Our Doppler-free spectral resolution allows convenient measurement of not only isotopes but also hyperfine profiles of individual isotopes. These information-rich isotope and hyperfine profiles offer unambiguous isotope identification since hyperfine profiles, i.e., atomic fingerprints, are unique. In addition, the wave-mixing signal beam can be collected with virtually 100% collection efficiency since it is a coherent laser-like beam. Conclusions: Important advantages include lower cost, simpler setup, minimum or no sample preparation steps, smaller sample sizes, better sensitivity, better selectivity and unambiguous isotope measurements. These unique features give wave-mixing based isotope measurement methods important advantages as compared to mass spectrometric methods (e.g., even $1.5 million mass spectrometers cannot resolve 87Sr and 87Rb isotopes). Acknowledgments: We gratefully acknowledge support of this work by National Institute of General Medical Sciences (RO1), National Institutes of Health, National Science Foundation, U.S. Department of Defense (CCAT), Lockheed Martin, Varian, Beckman, CSUPERB and Johnson & Johnson.

#272 5:15-6:45 pm
Size Determination of Nanoparticles by Micellar Electrophoretic Chromatography
Srilatha Vydha, Chemistry
Christopher Harrison, Chemistry

As the synthesis of nanoparticles becomes more commonplace the need to accurately and simply elucidate the size distribution of the nanoparticles has gained importance. Spectral methods such as absorbance and fluorescence can identify the bulk properties of a nanoparticle mixture, but more complex tools such as electron microscopes are often needed to obtain a measure of the distribution of nanoparticle sizes. We report on the feasibility of capillary electrophoresis based separation methods for the elucidation of the size distribution of cadmium selenide (CdSe) nanoparticles. Our strategy to separate these nanoparticles involves the use of the pseudo-stationary phase present in micellar electrokinetic chromatography (MEKC). However, the stability of nanoparticles in solution can be affected by the solution composition, including buffer and surfactant choices. Our approach to the separation of the nanoparticles has been to develop a modular technique, wherein buffers and surfactants can be altered as needed to accommodate the nanoparticles of interest. To this end a range of buffers, buffer pHs and surfactants (anions, cationic and nonionic) have been investigated in the separation of CdSe nanoparticles. In addition to the buffer modifications control of the electroosmotic flow has proved crucial in the analysis of CdSe nanoparticles; this has been accomplished through the use of semi-permanent capillary coatings. Our results show a differentiation in the migration times of the nanoparticles is attainable with the proper selection of surfactant, buffer components and modification of the electroosmotic flow. The use of a photodiode array detector shows clear differences in the secondary absorbance maximum, at wavelengths >400 nm, correlating with the differences in migration time of the CdSe nanoparticles; this absorbance maximum is attributed to the differences in the size of the nanoparticles. Based on our results, we believe that upon optimization the MEKC methods with suitable surfactants, buffer additives and electroosmotic flow control, will be very effective in the determination of the size distribution of a wide range of nanoparticles.

#273 5:15-6:45 pm
Electron Affinities of Electron Transfer Agents in Solution
James Hart, Chemistry
Andrew Cooksy, Chemistry

A new synthetic pharmaceutical compound, MTIP, shows evidence of curbing alcoholism in test animals. One proposed mechanism for its medicinal properties relies on MTIP supporting electron transfer in biological systems. This is based partly on the structural similarities between MTIP and the flavin group of compounds, which are important in the photo-activated electron transfer of several biological reactions. To test this hypothesis, we have predicted the electron affinities of MTIP, flavin, and their corresponding protonated forms by computational quantum chemistry, including effects due to stabilization by solvent. Calculations were carried out using density functional theory and a correlation- consistent basis set. To predict electron affinities, the most stable geometries of the normal and reduced forms of each of the four species were calculated. The resulting energy differences were then corrected for solvent effects in aqueous solution by the COSMO-RS method. To estimate the significance of the protonated forms, the pKa's of MTIP and flavin were also evaluated by the COSMO-RS method. Results indicate that MTIP has an electron affinity weaker than but comparable to flavin, and therefore electron transfer may play a role in its activity.

#274 5:15-6:45 pm
Laser Light Scattering as a Method of Nanoparticle Sizing
Ryan Razon, Chemical Physics
David Pullman, Chemistry

Particle sizing remains a costly and time-consuming spectre over nanochemical research and application. This study aims to produce a rapid and qualitative method for determining particle sizes of colloidal silver, as well as other metallic nanocompounds. The Lorenz-Mie solutions for electromagnetic scattering, when
Expression and Purification of Sphingomyelinase-D

Tom Huxford, Chemistry
Tony Dao, Chemistry

Expression and Purification of Sphingomyelinase-D from L. arizonica

Tony Dao, Chemistry
Tom Huxford, Chemistry

Sphingomyelin is the component of eukaryotic cell membrane. Hydrolytic products of membrane phospholipids function as potent second messengers in cell signaling. In order to gain understanding into the mechanism of sphingomyelin hydrolysis by enzymes and the potential for synthesizing SMAse-specific inhibitor, we propose to carry out structural and enzymatic studies of the SMAse-D activity from the venom of the Western Brown Recluse spider (L. arizonica). We used PCR to amplify cDNA encoding the enzymatic activity and cloned it into the phIS8 vector. We then transformed SMAse-D in E. coli in order to express the protein recombinantly. Consequently, we were able to purify SMAse-D with the affinity chromatography by using the Ni-affinity chromatography. Recently, we succeed in purifying this protein even further by running it through the size exclusion chromatography. We found out that SMAse-D prefers to be kept at cold temperature right after elution from the nickel column. We further show that SMAse-D should be purified in a short amount of time. Depending on which purification step the protein is in, it tends to aggregate with time. In the future, we have plans to test the enzymatic activity of our recombinant SMAse-D, test small molecules inhibitors, and determine the L. arizonica SMAse-D x-ray crystal structure.

Purification of Plant MAP Kinase 4 Using Drosophila melanogaster sf9 Cells

Vincent Siu, Biology
Tom Huxford, Chemistry

MAP kinases play important roles in plant cell responses. Intra- and extracellular stimuli activate these signaling proteins, creating a phosphorylation cascade. This results in the phosphorylation of specific serine/threonine residues on substrate proteins, thus allowing the plant to respond in an appropriate manner. Physiologic responses can range anywhere from the plant immune signaling to self-osmoregulation and gene transcription. Our protein of interest is MAP kinase 4 (MPK4), which has yet to be characterized biochemically. Cell-based studies of MPK4 have shown it to be associated with the signaling in plant immune responses. MPK4 negative mutants expressed an increase in resistance to pathogens and increased production of salicylic acid (SA). However, MPK4- mutants display a significantly dwarfed phenotype. Other characteristics include curled leaves and flowers, and reduced pollen production and fertility. Previous attempts to purify MPK4 using bacteria as an expression system have failed, so we decided to approach this problem using the eukaryotic expression system, sf9 insect cells. First, we isolated and amplified the MPK4 gene using a standard mini prep and PCR reaction. Our gene was then ligated into pFastBac HT-b vectors. We transformed these vectors into E. coli DH10Bac cells, where our gene transposed into the Bacmid DNA. By using X-Gal screening, we obtained positive colonies and isolated and purified the Bacmid DNA. We took this DNA and transfected our sf9 insect cells. We are currently generating recombinant Baculovirus with our gene of interest inserted into its genome. Future plans include infecting, expressing, and purifying MPK4 in our sf9 cells. We hope to use purified MPK4 for structural and functional studies. Studying the structure of MPK4 can allow us to suggest testable mechanistic hypotheses regarding MAP kinase signaling in plants.
Expression of a Random Peptide Library in the Nucleus and Cytoplasm of Mammalian Cells as a Screen for Factors that Block Infection of HIV

Ashton Regalado Magdos, Biology
Roland Wolkowicz, Biology

Discovery of new viral protein inhibitors will drastically improve treatment of individuals infected with Human Immunodeficiency Virus (HIV); especially considering the appearance of resistant strains. We hypothesize that random peptide libraries can be utilized to search for novel antivirals, targeting the classical viral enzymes protease, reverse transcriptase, and importantly, integrase. Although other approaches are currently being explored, the most effective treatment for infection with HIV, the causal agent of Acquired Immunodeficiency Syndrome (AIDS), is by these viral protein inhibitors in Highly Active Anti-Retroviral Therapy (HAART). HAART is able to delay the onset of AIDS, but progression is typically inevitable, revealing the need for novel antivirals. Here we propose the expression of a random peptide library, which is nine-amino acids in length, to be expressed in different compartment of the mammalian cell, particularly the cytoplasm and the nucleus. Retroviral technology will be used to stably express the library in T-cells, a cell-type readily infected by HIV. For that purpose, we have constructed a retroviral plasmid that will accommodate the library, which can be detected through antibodies due to the addition of a MYC tag. Importantly, the cells expressing the library can be detected and sorted by flow cytometry via the expression of a red fluorescent protein (mCherry), introduced downstream the random peptide library scaffold. Cells expressing the library will then be infected with a virus tagged with green fluorescent protein (GFP), allowing to easily track infection. This will allow sorting and amplification of cells that were immune to infection (not green) and expressing the library (red). We envision that peptide/s recovered from this screen could become the basis for novel peptidomimetic drugs against protease, reverse transcriptase (cytoplasmic library) or integrase (nuclear library). Further tests will be then performed to determine the effectiveness of the peptides in inhibiting viral infection. Funded by the SDSU MBRS/IMSD Program 2R25GM058906-09A1 (Joe Torres) and by the NIH/NIGMS SDSU MARC Program 5T34GM08303 (Ashton Magdos)

Bio-diesel from Cell Membranes

Samuel Ollar, Chemistry
John Love, Chemistry

The goal of this project is to generate energy-rich bio-diesel molecules using, as a source, cellular membranes. The main molecular components of membranes are phospholipids which contain two long hydrocarbon chains known as fatty acids. Fatty acids are medium-to-long chain hydrocarbons and thus rich in energy. These are the same fatty acids found in the plant-based oils traditionally used as the source of fatty acid methyl esters (FAME) which are the end products of conventional bio-diesel production. Bio-diesel production entails the use of significant amounts of energy for heating as well as the use of harsh chemicals such as strong bases and/or lye. We propose to eliminate these costly needs by re-engineering natural protein enzymes such that they efficiently extract fatty acids from membranes and chemically convert them to FAMEs. Examples of membrane sources include bacteria or yeast grown on sugar (glucose) as an energy source or micro-algae grown by way of photosynthesis.

Isolation of Potential Pharmaceuticals from the Peruvian Plant Flaveria Bidentis

Gabriel Chait, Biology
Robert Metzger, Chemistry
No Abstract

A Novel Method for Age Based RBC Separation

Rawiya S. Aburas, Chemistry
Christopher Harrison, Chemistry

The Harrison Research Group is developing a method for the separation of red blood cells (RBCs) on the basis of age. Capillary electrophoretic (CE) separations of RBCs are performed using a capillary coated with 1,2-dilauroyl-sn-phosphatidylcholine (DLPC) to control the electroosmotic flow (EOF). We hypothesize that the aging red blood cells yield different electrophoretic mobilities. By using DLPC to suppress the EOF the differences in mobilities become more apparent. Typically, RBCs are separated physically through the use of a density gradient centrifugation process; this method is time consuming and yields insufficient resolution to accurately judge the age of RBCs. We introduce a new method that enables us to monitor RBCs at various stages throughout their life cycle. This novel method achieves separation of RBCs using CE and only requires 60 μL of RBCs. By coating the capillary with DLPC, we form a stable coating on the capillary which suppresses the EOF and prevents any possible RBC adsorption to the capillary surface. We observed using this new method that the most dense RBCs have a shorter migration time than least dense RBCs. To demonstrate that the data showed separation of RBCs based on their age, we tested three fractions of RBCs with different densities from a density gradient for comparison. Results showed that the denser fraction had a shorter migration time while the less dense fraction had a longer migration time. There is a direct relationship between aging RBCs and increasing...
density, as red blood cells age they become denser. Therefore, CE is a viable alternative for the separation and study of RBCs and their ageing; with the potential to yield far greater information about the aging of RBCs than previous methods.

Session C-1
Poster Presentation: Learning Communities
Friday, February 27, 5:15 pm – 6:45 pm
Location: Montezuma Hall South

#281 5:15-6:45 pm
Reframing Teaching English as a Second Language in Mexico
Gerardo Garcia, Education
Cristina Alfaro, Policy Studies in Language and Cross Cultural Education

Due to the lack of national and State linguistic and academic standards in secondary schools in Mexico an education project, titled San Pedro, was created to adopt an International standard for testing English proficiency acquired at the secondary school level. The Key English Test (KET) has been utilized since August 2006, to the present, to evaluate and monitor students progress in three secondary schools in the southeastern area in the State of Mexico. The KET evaluates students in the following key areas: listening, speaking, reading and writing. The major contradiction is centered on the mismatch in students classroom performance and the KET results. While some achieve well in the two measurement systems (KET vs traditional classroom grading) others get good results in one only. These contradictions have propelled project team leaders to engage in research to better understand the results of the KET and to search for, pedagogically sound strategies that will strengthen the entire project. This study is specifically directed to address the following research questions. Major Research Question: what are the main factors affecting the teaching and learning of English as a Second Language at the secondary school level in Mexico? Research Sub Questions: How can we best utilize the KET results to inform the teaching and learning of English? How can teachers organize themselves in teams to help improve the process? What are the essential tools needed in order to effectively assess teaching and learning English as a second language? This study will focus on finding, research based, strategies to improve teaching and assessing English at the secondary level in Mexico. Our educational research framework is based on Freire, P. (2007), hooks (1994), Blankstein (2004), and Cummins (2006), who argue in favor of dialogical encounter among teachers to create learning communities that favor goal achievement and collaborative work in schools; to make the academy a place of challenge, dialectical interchange, and growth hooks (1994).

#282 5:15-6:45 pm
Making Reading and Writing a Social Tool for Preparatoria Students in Mexico.
Manuel Lopez, Education
Karen Cadiero-Kaplan, Policy Studies in Language and Cross-Cultural Education

Background: It seems there is not a direct connection between the actual practice of reading and writing with what is taught in schools. The goals pursued by schools regarding reading and writing are different from those that guide these activities outside school (Lerner, 2001). Furthermore, we think teachers should be aware that the teaching of reading and writing is not of exclusive competence of the language class. Language can be an instrument of communication and liberation, or, on the other hand, a tool for manipulation, oppression and discrimination (Lomas, 2001). Only if all the teachers use literacy as an instrument of social change, students will be able to find meaning in writing (Lomas, 2001). Possible solutions: Schools can publish teachers and students texts and make them an important part of the school life (Peña Borrego, 2003). What they have to say can be also important to the community in general. Students can be motivated to write seeing that the written word has a big role. That is why we began to write a school magazine for students, faculty staff and alumni. We are inviting all these members of school life to write and be an important part of the school community. We are giving a writing workshop for teachers. We think that all teachers should check written work and grade the way it is written in addition to the content of the assignment even if it is not language. In our poster we intend to show the process we are following to carry out this project. It is a long-term project that is just in its initial stages. It is our goal that as we continue with the project, we will have results that can inform the work further. We will present our initial findings and results that reflect the opinions from teachers and students. In addition, we will have example issues of the magazine.

#283 5:15-6:45 pm
Determining the Impact of a Peer Academic Mentor on First Year Residential Learning Community Students Academic Success
Vanessa Mathews, Education
Marilee Bresciani, Education

In the 2007–2008 school year, approximately 589 first year students lived in X residence hall and 423 first year students lived in the residential learning communities (RLC) in Y Residence Hall, at a large public institution in the Western United States. In fall 2007, about 23% of students in X and Y Halls were placed on academic probation. Hypothesis My hypothesis for this study is that students living in residential learning communities (RLC) in
This poster presents an action research study developed last summer in Mexico. It is part of a bigger project to attain the Middle schools Reform in Mexico’s exigencies. It belongs to a longer research study to improve Middle schools instruction towards English as a Foreign Language (EFL) certification in an urban area in the State of Mexico. It explores students’ outcomes and processes during the spoken test section of the Key English Test (KET) exam in Los Alamos (LA) Middle school. This analysis began after the first KET mock exam. It aimed to see LA spoken test process through the lens of research on the field of standards. The study widely relies on investigations on standards (Kuhlman, 2007). It deconstructs three major dangers of standards tests that the KET exam has, including the compulsory exam’s goal to provide students’ overall growth, after certain instruction time; the exam’s trivialization of contents and the binomy content-consequential validity. The analysis of this study incorporates both quantitative and qualitative measures. First, I used parametric analysis with descriptive statistics; and then I utilized a case study that included 2 interviews. My main objective was to see mismatches between classroom testing measures and KET exigencies. I analyzed the data following what Leedy and Ormrod (2008) suggest for interpreting research data: 1) Relate the findings to the original research project; 2) Relate the findings to preexisting literature; 3) Determine findings significance; 4) Identify limitations of the study (p. 276). Findings in the KET Oral Mock Exam of June 2008 indicated that there are 7 recommendations for the project holders:

1) Assessors need to provide clear, on time guidelines to avoid improvising and changing long term focus.
2) Student-teachers need to plan together in order to attain their personal goals and the project’s objectives.
3) Tutors need to communicate their expectations and questions more frequently in order to achieve their classroom goals.
4) Oral tests need to follow a standard pattern to eliminate surprises.
5) Assessors should construct only one rubric for all the oral exam to avoid work duplication.
6) Oral examiners should be more trained to avoid reliability in the test performance.
7) A new project should be written to refocus LA achievements.

Finally, these partial conclusions have led to a follow-up project on listening comprehension as a key feature of analysis to improve LA students’ oral outcomes. That study is exploratory and it is in its collecting data stage.
interrelationships emerged among student responses. Two distinct categories of characteristics of a good teacher emerged; those affiliated with teaching methods and those affiliated with a teachers relationships with students. When discussing teaching methods, some of the prevailing characteristics students presumed a teacher should have included being strict (to a certain degree), ensuring every student has an understanding of the content, and to maintain a fun learning atmosphere. Some of the predominant attributes students believed a teacher should possess in their relationships with students included being encouraging, caring, and concerned about furthering their students learning. This study displayed that students view good teachers as more than just a nice person; they depend on them to push them to succeed while still treating them with respect and encouraging them no matter what. The children also indicated that the relationship between teacher and student behaviors influenced how much learning took place in the classroom.

#286 5:15-6:45 pm
Exploring Differences in Academic Advising Experience
Miriam Pacheco, Psychology
Emilio Ulloa, Psychology

The process of advising is an integral part of a college education. Through adequate advising, an establishment of a collaborative relationship between advisor and student takes place, in which the latter develops a sense of support and guidance (Grand Valley State University, 2008). Research in the profession of Academic Advising is ample; however, research exploring the differences among different types of academic advisors such as Faculty Advisors, Professional Advisors and Peer Advisors is scarce. As student populations become more diverse in university campuses, enrollment rates decline and institutions become more complex, many universities are developing peer advising programs, aside from employing Professional and Faculty advisors (Barman & Benson, 1981). With more and more universities implementing peer advising programs, students are now exposed to a variety of advisors, and some may even have the ability to choose whether they want to work with a Peer Advisor, Professional Advisor, or Faculty Advisor. The current study will explore student opinions, preferences, and evaluation of the different academic advisors. The study recruited 119 students via online survey from all majors at San Diego State University, San Diego campus, with a mean age of M = 22 (SD = 5.86), where 53% of the sample were females. The study will explore differences in student experiences among the three different types of advisors: Faculty Advisors, Professional Advisors, and Peer Advisors. Questions about the perceived accuracy, quality, approachability, and overall helpfulness of their advising experiences will be compared. Preliminary results indicate that there is no difference in the accuracy of information reported by Peer Advisors, Professional Advisors or Faculty Advisors. Further results from this study will help pinpoint whether students prefer one type of advisor to the other(s), as well as help to isolate any potential factors that might impact this preference and/or color student perceptions of each type of advisor.

Session C-1
Poster Presentation: Neurophysiology
Friday, February 27, 5:15 pm – 6:45 pm
Location: Montezuma Hall South

#287 5:15-6:45 pm
Uncertainties in the BrainLAB Novalis Body/ExacTrac System and Their Clinical Implications
Casey Abing, Physics
Usha Sinha, Physics

ExacTrac is a part of BrainLAB Novalis, a multi-component system to deliver precision radiotherapy to small lesions in brain and elsewhere. It is an image guidance system consisting of a pair of x-ray tubes mounted next to a linear accelerator, infrared (IR) reflectors and detection devices and a software module that integrates image guidance with the treatment machine. The current version of ExacTrac is relatively new in market and its capabilities have not been fully reported in literature. This study evaluates uncertainties associated with system calibration, x-ray translation/rotation positioning errors for cranial and extracranial setups, IR body marker uncertainties, IR body marker absolute/relative positioning errors and utility of virtual isocenter techniques during image-guided radiotherapy. The experiments were carried out on Sharp Memorial Hospitals ExacTrac system operated at software version 5.01 along with a CT scanner. Uncertainties in patient set-up using ExacTracs image guidance were evaluated with three separate phantoms (1) CIRS cranial phantom (2) CIRS thorax phantom and (3) Rando® phantom. Errors associated with IR body markers were investigated using a CIRS thorax phantom with 20 IR body markers. Utility of virtual isocenter technique was investigated for cranial as well as extracranial application. Phantoms were scanned using the in-house CT scanner and varieties of target points were selected. The ExacTrac system was employed to set these phantoms at the treatment machine for radiotherapy. The set-ups were compared to expected true set-ups. The X-ray module of ExacTrac was found to offer sub-millimeter accuracy (when used optimally) in setting up the phantoms anatomy to radiation beams. The infrared system was remarkably
Postnatal Choline Administration Attenuates Memory Impairment Associated With Neonatal Alcohol Exposure in the Rat

Elizabeth Abou, Psychology
Jennifer Thomas, Psychology

Prenatal alcohol exposure disrupts behavioral development, leading to long-lasting alterations in a number of domains, including cognitive performance. Using a rodent model, we have previously shown that choline supplementation can attenuate adverse effects of developmental alcohol exposure, even when administered weeks later, during postnatal development. The present study examined whether administration of choline at different postnatal ages following developmental alcohol exposure, can reduce alcohol-related memory impairments. Neonatal Sprague-Dawley rats were randomly assigned to one of seven treatment groups. Five groups received ethanol intubations (5.25 g/kg/day) in a binge-like manner from postnatal day (PD) 4-9, a period of brain development equivalent to the third trimester. Two groups served as sham intubated controls. All rats were injected s.c. from PD 11-40 with either 100 mg/kg/day choline chloride or saline. One ethanol-exposed group was injected with saline from PD 11-40; the others received choline injections from PD 11-20, PD 21-30, PD 31-40, or PD 11-40. The two sham groups received either choline or saline throughout the PD 11-40 period. At three months of age, subjects were tested on an object recognition task, a simple and sensitive task used to assess long-term memory. Performance of ethanol-exposed subjects not treated with choline was significantly impaired compared to all other groups. That is, administration of choline supplementation at any of the time points significantly improved object recognition performance among alcohol-exposed subjects, with the greatest improvement among those that received choline from PD 11-40. These findings suggest that choline administration at various postnatal periods can attenuate ethanol’s effects on simple memory performance. These results indicate that choline may serve as an effective treatment for some cognitive deficits among individuals with fetal alcohol spectrum disorders, even when administered later in postnatal life. Supported by AA12446.

Dietary Choline Deficiency Exacerbates the Effects of Prenatal Alcohol Exposure on Physical and Behavioral Development

Yoef Nacach, Psychology
Jennifer Thomas, Psychology

Prenatal alcohol exposure disrupts development, producing a range of effects referred to as fetal alcohol spectrum disorders (FASD). The severity of fetal alcohol effects varies widely among children exposed to alcohol during pregnancy, likely due to level and pattern of alcohol exposure, genetics and other prenatal factors. Some of this variation may be due to nutritional factors. For example, higher rates of FASD are reported among populations with poor nutrition. Recent epidemiological studies have shown that many women throughout the world may not consume adequate levels of choline, a nutrient that is critical for brain development, during pregnancy. In this study we examined whether choline deficiency might increase the severity of fetal alcohol effects. Sprague-Dawley rats were randomly assigned to receive diets containing 40, 70 or 100 percent recommended choline levels throughout pregnancy. A group from each diet condition was exposed to alcohol (6.0 g/kg/day) from gestational day 5 to 20 via intubation. Pair-fed and ad lib lab chow control groups were also included. The offspring were examined for physical development and tested on a range of behavioral tasks, including development of reflexes, open field activity, and spatial learning. Neither prenatal alcohol exposure nor choline deficient diets by themselves produced robust alterations in development. However, subjects exposed to alcohol prenatally in combination with a diet containing 40% recommended levels of choline exhibited significant delays in eye opening, impaired hindlimb coordination, and hyperactivity. There were no significant differences in outcome between alcohol-exposed subjects fed the 70 or 100% choline diets. These data indicate that even moderate, suboptimal nutritional status may exacerbate some of ethanol’s teratogenic effects, a finding with important implications for the prevention of FASD. Supported by NIAAA 014811.
(Carstens et al., 1998) trigeminal pathways in a concentration-dependent manner, which may be mediated in part by its interaction with the TRPV1 sensory receptor (Trevisani et al., 2002). The TRPV1 receptor is prevalent in peripheral sensory neurons, including those that innervate the oral cavity (Ishida et al., 2002), where it mediates the detection and transduction of noxious chemical and thermal stimuli. Recent data from our lab indicate that TRPV1 receptor knockout mice show a reduction in initial orosensory avoidance responses to alcohol; however, the impact of this receptor in long-term alcohol intake is not understood. The present study investigated the microstructure of long-term ethanol ingestion (i.e., size, duration, and frequency of drinking bouts, interbout intervals, and within-bout rates of ingestion) as well as overall ethanol intake and preference in TRPV1-/- and C57BL/6J wild type mice across a range of concentrations (3-40%) presented in ascending order vs. water for a period of 4 days/concentration. Separate groups from each genotype were tested with sucrose (0.003-1 M) as a negative control, and all animals were tested with a single concentration of capsaicin (0.3 mM) to confirm TRPV1 phenotype. Duration and frequency of drinking bouts decreased and interbout intervals increased with rising ethanol concentration. TRPV1 knockouts displayed elevated total intake and preference for 15% ethanol relative to wild type mice, which was driven primarily by an increase in the number of ethanol drinking episodes. Genotypes did not differ in ingestive responding for sucrose, and showed large differences in responses to capsaicin as expected. These data suggest that the TRPV1 receptor influences long-term alcohol ingestion by a suppression of frequency of drinking at intermediate alcohol concentrations.

Session C-1
Poster Presentation: Policy, Politics, and Justice
Friday, February 27, 5:15 pm – 6:45 pm
Location: Montezuma Hall South

#291 5:15-6:45 pm
A Struggle When Addressing Gender in the Pursuit of Power: The Mediated Reaction to Hillary Clinton’s Metaphor “18 Million Cracks in the Glass Ceiling”
Amanda Mizell, Communication

On June 7, 2008 Hillary Clinton stood in front of her dedicated supporters, who had been lining up since dawn, for her farewell address finalizing her withdrawal from the race to be the democratic presidential nominee. She showed her appreciation for the support during her campaign, advocated support for the future 2008 democratic nominee and emphasized the political milestone accomplished by her campaign. Hillary Clinton’s statement: “Although we weren’t able to shatter that highest, hardest glass ceiling this time, thanks to you, it’s got about 18 million cracks in it,” has become a metaphor to illustrate the struggles of women and shape the next wave of action. This metaphor has created a public argument within print media regarding how women should express their gender in positions of power. This argument reflected a dichotomy: whether Hillary Clinton should have embraced her role as a woman (as she did in her farewell address) throughout her campaign, or downplay her gender and run simply as a qualified candidate for the democratic presidential nominee.

#292 5:15-6:45 pm
The Cosmopolitan Condition
Jeff Sharpless, Philosophy
Angelo Corlett, Philosophy

In The Law of Peoples, John Rawls proposes a thought experiment that is designed to produce principles of justice within a state. In Between Naturalism and Religion, Jürgen Habermas argues that the Rawlsian program does not go far enough. He argues more is needed of a political theory in order for it to evade George W. F. Hegel’s charge of Immanuel Kant’s view, namely, that it expresses the impotence of a mere ought. While it is unclear whether Habermas fairly characterizes the Rawlsian original position as it might be applied to global justice, serious problems remain for Habermas cosmopolitanism that do not arise for Rawls theory of global justice as it is articulated in The Law of Peoples. We shall defend Rawls position from Habermas critique. In so doing, we shall point to weaknesses in Habermas cosmopolitanism.

#293 5:15-6:45 pm
We See Barack Obama and John McCain as Equally American? It Depends on Our Lenses!
Jessica Winet, Psychology
Thierry Devos, Psychology

During the 2008 US presidential election, we examined the role of construal processes in the perception of political candidates. More precisely, we sought to document that highly flexible construal processes determine the extent to which politicians are viewed as prototypically American. We conducted two studies focusing on Barack Obama and John McCain. These two political candidates can be construed either as unique individuals or as representatives of social groups defined based on race (Black vs.
White), age (Young vs. Old), or political affiliation (Democrat vs. Republican). Based on prior research showing that the American identity is more strongly associated with White people than with Black people (Devos & Banaji, 2005; Devos & Ma, 2008), we predicted that Barack Obama would be seen as less American than John McCain when perceivers focus on the candidates racial identity, but that this association would be less pronounced when perceivers focus on other social identities (e.g., age or political affiliation). Participants completed 3 Implicit Association Tests assessing the direction and the strength of the association between the candidates and the concept American (relative to foreign). They were asked to categorize pictures of Obama or McCain and American or foreign symbols as quickly and accurately as possible. For each of the IATs we shifted the way in which participants construed the targets by changing the categorization criterion they used to sort the pictures. Participants were asked to focus on the targets racial identity, personal identity, and political identity (Study 1) or age identity (Study 2). As predicted, the extent to which the concept American was associated with the candidates varied as a function of the frame through which they were construed. When the candidates were categorized based on their racial identity, Obama was seen as being less American than McCain. When the candidates were categorized based on their political or age identity, they were seen as being equally American. These findings emphasize the role that construal processes can have in the perception of political candidates, which could have larger implications for American politics.

#294 5:15-6:45 pm

**Racial Background and Judicial Elections: Determining the Voting Patterns of Minority State Supreme Court Justices**

Lawrence Cisneros, International Security and Conflict Resolution
Madhavi McCall, Political Science

There continues a heated debate as to the merits of how, and if, race has an impact on a justices voting behavior. This study will examine the how race and electoral cycles affects state Supreme Court justices voting patterns. Principally, I posit that limiting the scope of judicial voting disparities based on either race or electoral cycles diminishes the accuracy of the conclusions derived from such narrow confines when examining minority justices. Studying both variables will more accurately illustrate each voting determinant independently of one another, but more importantly, how they impact each other. I will present the study’s findings on whether white justices differ from non-white justices in their decision making, while accounting for whether the justices are appointed or elected, in cases argued under the Fourth Amendment.

#295 5:15-6:45 pm

**Attitudes of California Court Interpreters Regarding Current Economic Conditions**

Karen Sevilla, Spanish
Rogelio Reyes, Spanish

The majority of California court interpreters are independent contractors, depending on their hours of work for their income and living expenses. The recent U.S. economic meltdown has affected the income, savings, and job security of major sectors of the population. In an attitudinal study of California Court Interpreters, we distributed a questionnaire to the attendees of the 38th annual conference of the California Court Interpreters Association in San Diego, California, October 11-13, 2008, Following are the research questions we will attempt to answer in the present study: 1) What are the attitudes of court interpreters in California regarding their current socioeconomic status? 2) Do California court interpreters favor using tax monies to bail out financial institutions on the rocks due to defaulted mortgage payments, unsound financial investments, etc. 3) Why or why not? The individual answers to the questionnaire were tabulated to probe economic and social factors that may drive an important sector of the California population toward support or rejection of current government trends. Significance of the Study: Based on the findings of this study, professional associations such as the California Court Interpreters Association, the California Federation of Interpreters, AFL-CIO, etc. will be better able to plan a political strategy to counter the effects of the current economic crisis.

#296 5:15-6:45 pm

**Documenting Impacts of Illegal Mining on Guizhou Golden Monkey Habitat in Southwestern China Using Remote Sensing**

Sarah Wandersee, Geography
Li An, Geography

Guizhou province in southwestern China contains the only populations of the Guizhou snub-nosed golden monkey (*Rhinopithecus brelichi*), one of three species of golden monkey in the world. Highly endangered, these rare monkeys were still an unproven rumor in the 1950s. Recent exploration of their habitat...
Remote Sensing of Early Season Snowmelt and Green-Up Dynamics Across the North Slope of Alaska

Raghuram Narasimhan, Geography
Douglas Stow, Geography

Monitoring the growth and distribution of Arctic shrubs is important in the context of recent changes in early growing season conditions in the Arctic ecosystem. The primary objective of this study is to examine the utility of daily Moderate Resolution Imaging Spectroradiometer (MODIS) Snow Cover and computed daily Normalized Difference Vegetation Index (NDVI) products for studying early season green up dynamics of Arctic tundra vegetation within the North Slope of Alaska. Dates of complete snowmelt for 2003-2005 were recorded for pixels that were cloud free at the time of complete snowmelt. To counter the limitations posed by cloud cover, early season NDVI trajectories were derived for cloud-free pixels using daily MODIS data based on a chronosequence (temporally continuous but aspatial) and a pixel trajectory (temporally discontinuous but spatial explicit) approach. These NDVI trajectories were compared with MODIS 16-day MVC NDVI trajectories using three-year averages of early season integrated NDVI (ESINDVI), to determine whether daily NDVI derived trajectories capture early season green-up dynamics of Arctic plants more precisely than MVC trajectories. Further, NDVI temporal metrics such as rate of greenness onset (ROGO) were computed to assess differences in green up rates among Arctic tundra vegetation types. For about two weeks following snowmelt when NDVI increases rapidly, North Slope ESINDVI values for daily NDVI trajectories were approximately 9% greater than MVC derived ESINDVI values. Following this initial period until peak greenness (a period of gradual NDVI increase), ESINDVI difference between the daily and MVC NDVI trajectories were approximately 1%. Regions mapped as shrub tundra experience the earliest mean date of complete snowmelt, earliest onset of greenness, and had the highest early season green-up rates relative to the other vegetation community types that contain fewer and smaller shrubs. The ability to observe changes relatively early in the growing season using daily MODIS data means that more accurate estimates of primary productivity can potentially be achieved. Green-up rates observed in the initial period following snowmelt are indicative of the underlying vegetation cover, and therefore ROGO metrics have strong potential to serve as indicators of change in the abundance and extent of Arctic shrubs in the long term.

An HHT Analysis of Climate Normals
Scott Strachan, Mathematics and Statistics
Sam Chen, Mathematics and Statistics

A climate normal is the expected surface temperatures of a given location. Significant temperature deviations from a climate normal commonly lead to crop damage and increased energy consumption which have importance in the insurance and energy industries. In order to establish a helpful and accurate probability distribution of such climate anomalies, attention must be paid to a careful construction of a climate normal. Instead of a widely used 30 year average of past temperatures, this project investigates a dynamic normal produced from application of the Hilbert-Huang Transform (HHT). The HHT decomposes the non-linear and non-stationary daily temperature signal into an adaptive basis set whose quasi-periodic elements, or intrinsic mode functions (IMFs), often have physical meaning. The dynamic normal is identified as the strongest IMF with a mean period of 365.25 days. The properties of this quasi-periodic dynamic normal, such as the instantaneous frequency and anomaly distributions, demonstrate this normal as a better candidate for analysis and prediction than the 30 year average normal.
Session D-1
Oral Presentation: Creative Arts and Writing
Saturday, February 28, 8:00 am – 9:45 am
Location: Backdoor

#298 8:00 am
Fiddler in the Darkness
David Guterman, Television, Film and New Media Production
Greg Durbin, Television, Film and New Media Production

Short Film Synopsis: In colonial New England, a grandmother tells her grandson the fantastical tale of The Fiddler in the Darkness. The story begins as a priest finds a crying baby on the steps of his church, with a fiddle on one side of him and his parents, dead as doornails, on the other. Christopher Wood grows up living in the church, until one day he finds out that his childhood crush has unexpectedly died. After the young woman’s funeral, Christopher discovers that with his fiddle he has the power to breathe life into things that are dead, as he brings the young woman back to life for just as long as he can play. It is said that in the dead of night, if you listen closely, you can faintly hear Christopher Wood playing in the distance, trying to bring the dead back to life.

#299 8:15 am
The Connection Between Rap and Blues Lyrics
Justin Ector, Africana Studies

This presentation will show that such topics as drinking, partying, drugs, violence, humor and sexuality that rap artists are talking about is nothing new from what they were talking about in the early days of the blues. The language may be a little different but that is because language evolves over time.

#300 8:30 am
Labanotation of San Diego Salsa Dancers
Jamie Lane Lynch, Dance
Graham Hempel, Dance

This study uses Labanotation, a movement notation system, to compare stylistic similarities and differences between Salsa dancers in San Diego. Labanotation is used primarily in the dance performance world, although I reiterate the argument that anthropology might find this system of notation useful in describing and comparing body movement among transnational groups of people. Potential benefits of Labanotation in the anthropological method include furthering the body of knowledge about the functional and social processes of regional variations in dance.

#301 8:45 am
Dramatizations in Documentaries
Matt Snead, Television, Film, and New Media Production
Mark Freeman, Television, Film, and New Media Production

Documentary filmmaking is a specialized art form that strives to achieve a mission that’s different from other forms of filmmaking. Aesthetics is a branch of philosophy that is the study of critical reflection on art and culture that studies new ways of perceiving the world. When studying filmmaking through the perspective of film aesthetics it is important to understand the difference between a fictional filmmaker and documentary filmmaker. A fictional filmmaker’s goal is to entertain his audience whereas the mission of a documentary filmmaker is to tell an engaging factual story. However, how the information is presented in a documentary and from whose perspective is debatable. The general assumption of an audience watching a documentary is to believe everything is factual including the association it draws between the dialogue and the visuals. If a filmmaker associates dramatizations to factual dialogue, the perception of the facts is changed in a way that aestheticizes the films content and subjects. Simply put, the facts that are verbally discussed in a dramatized documentary do not always coordinate accurately with what’s shown on the screen. Errol Morris was first recognized as a great documentary filmmaker for his use of dramatizations in the film The Thin Blue Line (1988). However his latest documentary Standard Operating Procedure (SOP, 2008) that deals with the subject of torture at Abu Ghraib has been widely criticized due to its use of dramatizations. This study is a critical analysis of dramatizations in SOP. The research compares and contrasts Taxi to the Dark Side (2007) and Ghosts of Abu Ghraib (2007) (both documentaries on the subject of torture) and points to the conclusion that relying on dramatizations to tell a story of torture does not show the real social and political consequences of using torture in war. However, the research does point to the conclusion that using dramatizations for certain subjects can be used accurately.

#302 9:00 am
Bringing Back Dionysus: Creating Nietzschean Unity by Joining Performers and Spectators in Modern Retellings of Euripides Tragedies
Lauren Beck, Theatre Arts
D.J. Hopkins, Theatre Arts

In The Birth of Tragedy, Friedrich Nietzsche outlines his theories about the goals of tragic theatre, focusing on the works of the ancient Greeks. According to Nietzsche, one of the goals of tragedy is to fight the impulse of civilized people to cling to individuality and to create, through the use of the tragic elements, a feeling of unity in the audience. Nietzsche’s ideal audience is one that has been transformed from a crowd of rational individuals into
an instinctual collective, fostering a deep connectedness in the audience that Nietzsche believes will bring them greater earthly contentment. Nietzsche outlines the unifying techniques employed in the earlier Greek tragedies, but writes that later tragedies, modeled after those of Euripides, were unsuccessful. Two modern directors, Richard Schechner and Matthew Wilder, use a technique that Nietzsche does not identify—dismantling the barriers between audience and performers—to transform Euripides' work from logical, unemotional constructions into powerful unifying experiences. Schechner and Wilder, to varying degrees of success, create a Nietzschean unity. However, in The Birth of Tragedy, Nietzsche is clear that theatre is an art form that is a blend of Apollonian (rational, cultural) and Dionysian (emotional, primitive) forces—and that the power of tragedy lies in the balance between the two. By eliminating all traces of Apollo from his play, Dionysus in 69, Schechner disrupts the balance that is necessary to achieve Nietzsche's primordial unity while still maintaining human rationality. Wilder, however, in Songs of Joy and Destitution, maintains some Apollonian elements and thus leaves his audiences with the rational ability to appreciate the ironies in his production. By manipulating the barriers between audience and performer, theatre makers can use the intimacy of the theatrical experience to unify their audiences. However, there is danger in encouraging audiences to abandon their rationality, individuality, and morality in order to achieve Nietzsche's unity.

Session D-2
Oral Presentation: Politics and Campaigns
Saturday, February 28, 8:00 am – 9:45 am
Location: Calmecac

8:00 am
#304
Title IX: A Fight for Equality
Charlotte Wagner, Communication
Chuck Goehring, Communication

Title IX was passed in 1972 to eliminate gender discrimination in education by providing equal funding for all students regardless of gender. Traditionally, more funding had been provided for male activities in education, especially in regard to athletics. Due to the focus on athletics, Title IX has become one of the most controversial topics in education. Supporters of Title IX recognize the various opportunities opened to women for the first time in their lives, such as increased interest and involvement in different programs and activities such as athletics. Opponents, however, fail to acknowledge these substantial gains for women, instead focusing on the negative effects Title IX has had on male athletic programs, which tend to overshadow any positive outcomes. Research from numerous scholarly journals as well as books and online articles demonstrates that this is an emotionally charged argument, and therefore both sides feel very strongly about their views. This paper examines the many arguments for and against Title IX, and rhetorically analyzes the ways in which each side of the debate was presented. While supporters tended to frame their arguments positively, opponents used false statements and negative press to give Title IX a poor media image. After studying this controversial debate, we identified with the supporters of Title IX, and argue its positive changes provide an important

#303 9:15 am
Connecting the Dots, a Timeline from Book to Blood: How the Play Charles IX Incited the French Revolution
Joan Hurwit, Theatre Arts
D.J. Hopkins, Theatre, Television and Film

My research explores the possibility that theatre that has the power to provoke social and political change. Rather than simply show how historical events have affected theatre trends, I argue that shifts in theatre fashion may have altered the course of the French Revolution. In 1787, King Louis XIV influenced a growing gap in France's theatre genre; he funded upscale performance for the sake of spectacle, to which the lower-class was not admitted. To the masses, he was throwing away money for an art they were not permitted to enjoy. Consequently, a new theatre genre emerged expressing the frustrations of a nation anxious to return theatre to the people. Theatre could represent grand ideas and incite change, inciting revolution in its spectators. However, theatre didn't feed the audience a theme but rather demonstrated the notion of liberty. Charles IX finally premiered only months after the storming of the Bastille. Theatre was a voice for the revolution, and Chénier led that fight. Not only did theatre provide a social and political context for the French Revolution, Chénier used Charles IX to manipulate an entire culture.

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step toward equality for women in society. Actions such as raising public awareness of this issue will likely increase the likelihood of all schools being in compliance with Title IX. The remainder of the project is devoted to discussing how the most effective way assure that Title IX is carried out properly is to become an activist on the issue. Several avenues for activism are discussed, such as having a discussion with the Title IX coordinator at any given educational institution, or becoming a member of one of the numerous women’s support groups fighting for Title IX, such as the Women’s Sports Foundation.

#305 8:15 am  
**The Effects of the 2008 Biden-Palin Vice Presidential Debate**  
Jenna Patronete, Communication  
Peter Andersen, Communication

The historic 2008 campaign featured four debates, one of which was the Vice President debate between Alaska Governor Sarah Palin and Delaware Senator Joe Biden. Traditionally, it was believed that Vice Presidential Candidates have marginal roles in the election and Vice Presidential debates may have even less effect. We conducted a study to ascertain the effects of the October 2, 2008 Vice Presidential Debate and to ascertain the association of credibility, homophily, and attraction on voting, by interviewing a random sample of voters on October 1, the night before the debate and a second sample after the debate on October 3. Results showed a statistically nonsignificant by potentially important shift toward the Biden Obama ticket during the period of the Vice Presidential Debate. Not surprisingly, voter preference was highly associated with perceived outcome of the debate. Finally, the results showed strong associations between credibility/competence, attitude homophily, and social attraction and voter preference.

#306 8:30 am  
**Feels Like the First Time: the Influence of Interpersonal Communication, Traditional Media, and Internet Sources on First-Time Voter Decision**  
Travis Coufal, Communication  
Peter Andersen, Communication

This study examines how first-time voters in the 2008 presidential election are influenced by communication from various sources. In this highly politicized world of abundant media coverage, celebrity endorsements, and endless Internet commentary, it is important to understand whether interpersonal communication with parents, teachers, peers, and church leaders is still as significant to a voter's decision as in the past. Given trends of increasing Internet use in political contexts and the growth of Internet use and social networking sites, particularly among young adult populations, it was hypothesized that the Internet would play a more significant role in this election. To answer this question, a self-report survey of first-time voters was conducted the week of the 2008 presidential election. Mirroring past research, first-time voters' political party affiliation was correlated to the party affiliation of their parents. In addition, participants reported discussing the election with friends more frequently than with parents or significant others, but they reported parents to be the most influential on voter decision compared to other interpersonal contacts. These findings are consistent with previous studies that indicate parents are the primary source of influence on young voters. Finally, this study sought to uncover the relative influence of interpersonal communication, traditional media, and the Internet. Self reports of influence reveal news media to be the most influential on first-time voter decision making. In sum, participants did not identify the Internet as influential to their decision making, and parental influence remains a strong indication of voter decision.

#307 8:45 am  
**The Role of Public Relations in a Ballot Proposition Campaign**  
Mark Olson, Journalism and Media Studies  
Bey-Ling Sha, Journalism and Media Studies

In November 2004, Proposition A was approved by San Diego voters with a 67% approval rating. This was just above the required two-thirds needed for the measure to pass. Proposition A extended a half-cent sales tax to pay for critical transportation infrastructure projects in the San Diego region for 40 years. While the victory is well-known, the strategy to win approval is not. Understanding the public relations efforts of Proposition A proponents is fundamentally important to the paradigm of public relations. Through in-depth interviews this study examines the multiple facets of public relations utilized by proponents in a complex ballot proposition campaign effort. Theories and concepts of public relations are applied to clarify the strategies employed by proponents. Providing transparency on this topic will further assist with efforts to identify an overall strategy for successful ballot proposition campaigns.

#308 9:00 am  
**Reading From Left to Right: the Politics of Partisan Review**  
Matthew June, History  
Andrew Wiese, History

Influential, respected, and ostensibly independent, Partisan Review was an anti-Stalinist literary journal founded in 1930s New York City. Originally based on a radical Marxist perspective, the content and editorial line of Partisan Review changed significantly...
Valerie Renegar, Communication
Karl Smerecnik, Communication

Capitalistic Agency: BPs Helios Power Campaign

In this essay, we use rhetorical analysis to argue that BPs (British Petroleum) Helios Power media campaign functions as a form of capitalistic agency. Helios Power, launched in 2007, is BPs most recent USA television, radio and internet brand-advertising campaign. The campaign advertising features an animated BP fantasy-world where anthropomorphic gas station pumps whistle while pumping gas, babies drive cars, and the gas station attendants are miniature people from another dimension. The campaign web site heavily incorporates green marketing, with wind turbines in background images, environmental buzzwords throughout the text, green color schemes, and a section dedicated to conservation advocacy. The concept of capitalistic agency illuminates the ways in which this campaign rhetorically manages social issues of environmental sustainability, climate change, and dependence on fossil fuels. Capitalistic agency is defined as the capitalistic response to social change where a business entity attempts to influence a customers sense of agency by rhetorically aligning with a social issue, providing the customer with a sense of issue participation, and restricting the acceptable parameters of social change to prevent loss of profit. This is accomplished through a strategy of enthymematic messages, public participation rhetoric, and incremental solutions to social problems. BP enables the guise of socially and environmentally responsible consumerism while simultaneously discouraging larger conversations of oil dependence and global climate change. Additional instances of capitalistic agency are also discussed related to such industries as tobacco, forestry, meat, agriculture, and cosmetics. This research challenges consumers to more critically analyze the choices provided by corporate entities and more carefully consider their own individual forms of conservation behavior.

Session D-3
Oral Presentation: Spiritual Explorations
Saturday, February 28, 8:00 am – 9:45 am
Location: Casa Real

#310 8:00 am
Sacred Comedy: Investigating Humor as a Pathway to Religious Tolerance

Sherry Shopoff, Classics
Joseph Smith, Classics and Humanities

In an increasingly globalized society, diverse religions interact as never before. This interaction is often disastrous among groups whose worldview, held by fundamentalists, is based on the paradigm for tragedy, which creates adversarial divisions and dualistic perceptions. A comedic worldview fosters pluralism and tolerance by transcending perceived divisions through the humorous reiteration of our common human condition and tension-relieving laughter. This study explores the instances of comedy and humor found within religious beliefs, practices and texts from multicultural and multidisciplinary perspectives to develop a strategy whereby humor can be utilized to mediate between polarized groups, and to offer an alternative comedic interpretation of religious texts. The scope of research undertaken focused on six religious groups spanning a chronology of religious development from pre-historic shamanism to contemporary evangelical
movements: the Pueblo Indians, Greco-Roman paganism, Hinduism, Judaism, Christianity and Islam. A discreet and comparative examination of the attributes of the deities, rituals, texts (or oral narratives) of the six groups was then applied to a rubric of comedic elements, methods, and characters, compiled from multidisciplinary sources. Research methodology also included field observation of religious rituals and festivals. The second prong of the thesis consists of a thirty-minute documentary film project as an appendix to the written thesis providing an appropriate medium for the topic of comedy. Additionally, the completed film can serve as a vehicle for community discussion. The documentary includes videotaped interviews with scholars and ecumenical leaders, and man-on-the-street interviews, archival footage, and animation. There is a rich tradition of humor in all four major religions, including deities who function as tricksters, clowns, and fools to upset governing laws and the status quo, and mediate the division between humans and gods. Sanctioned trickster behavior is also found throughout the Judeo-Christian bible, and the Islamic Hadith. Further, humor and tricksterism are considered effective tools in professional mediation, particularly between parties who are deeply polarized. Therefore, a mediation strategy to ameliorate tension and hostility between inter-faith groups could successfully employ humor and simultaneously affirm two diverse religious ideological positions.

#311 8:15 am  
*With Continual Delight: the Spiritual Meditations of Lady Grace Mildmay*  
Gaelan Gilbert, English  
Catherine Field, English Literature  
The late-medieval period fostered the collapse of Scholasticism, whose theological ruins yet remained within the terminology and mystic practices of early modern Christians (de Certeau). Early modern Christian belief should thus not be understood as governed by a dualism (Protestant/Catholic). Rather, manifold conceptions of what Christian ‘faithfulness’ implies engendered an array of textual manifestations. The spiritual meditations of Lady Grace Mildmay comprise one such manifestation. As a Tudor aristocrat, hers was a time when the activity of the divine was no longer held to be delineable (via allegoria facti) within the order of creation or the events of Scriptural history. God had been “lost”, most pertinently for Protestants like Mildmay, from the Eucharistic altar (Schwartz). I want to argue that Mildmays meditations embody a locution of longing for this “lost” body of God. However, because of their status as a female-authored text, her meditations needed to exhibit socially legitimate conventions for Christian belief (an overt reliance on Scripture), even while transcending those conventions in the name of her desire for Christ by hearkening back to an earlier, medieval mode of worship. In her meditations, Lady Grace Mildmay reappropriates the practice of allegorical biblical exegesis as an erotic mode of transformative response to Christ, who is thus revealed as desirable within the biblical text. The biblical passages she interprets come from the sexual epithalalia of the Song of Songs. Her adherence to the earlier tradition of reading these passages as an allegory for the intimate love between Christ and the (female) Church and/or soul involves a unique factor: Mildmay, unlike the male theologians who traditionally commented on this text, is female. I will explore the implications of this relation between Mildmay, as the (voice of the) Beloved, and the one for whom she longs, namely Christ the Lover. Several fruitful questions shall be posed: what role does desire play in a normative Christian personhood? Is there a distinctively feminine aspect to hermeneutical activity that Mildmay exhibits? What are the social implications of an early modern female authorship which presumes in a later period to reappropriate marginalized practices of Christian worship?

#312 8:30 am  
*Occasionalism and God’s Volitions: Minimalism Versus the Traditional Reading*  
Nicholas Doenges, Philosophy  
Steve Barbone, Philosophy  
In my research paper, entitled Occasionalism and God’s Volitions: Minimalism Versus the Traditional Reading, I explore the issue of how God’s volitional activity, within Malebranche’s theory of occasionalism, should properly be interpreted. God’s existence is assumed, since it is essential to Malebranche’s philosophical system, and my intention is to approach Malebranche’s philosophy on its own terms, rather than debate the question of God’s existence. As such, I argue for the traditional reading of God’s volitional activity, citing passages from two primary works by Malebranche and the commentaries of two Malebranchean scholars, Steven Nadler and Andrew Pessin. Further, I examine the minimalist reading, as it is presented by the Malebranchean scholar Nicholas Jolley, and discuss the flaws and misinterpretations that render it an unsuitable reading of Malebranche. Basically, in its effort to reduce God’s volitional activity, the minimalist reading misinterprets how it is that God acts by laws. I argue against the minimalist view that God prescribes laws of nature to operate within the world at particular occasions, and instead argue that God’s laws are properly understood as being issued by God for God. That is, I argue that God conforms His activity to self-prescribed laws in the interest of most perfectly demonstrating His nature. I offer textual evidence from Malebranche’s works *Dialogues on Metaphysics and Treatise on Nature and Grace* to defend my position and demonstrate that, properly understood and contrary to the minimalist reading, Malebranche intends God’s volitional activity to involve constant individual acts of will by which God sustains and moves all creation. I conclude that the traditional reading is more in keeping with Malebranche’s
intention that God be understood as the sole true cause on which all creation depends entirely, that at similar occasions God acts uniformly to best exemplify His nature, and that what the minimal-ist reading sees as laws of nature are more appropriately identified as God’s uniform patterns of volitional activity.

#313 8:45 am
Reconciling the ‘Self’ in Buddhist and Western Psychology
Tonya Warren, Philosophy

Research into the possible therapeutic benefits of Buddhist meditation has involved afflictions as varied as epilepsy, psoriasis, depression, and borderline personality disorder. In our enthusiasm to integrate Buddhist meditation into Western treatment protocols we have scarcely, if ever, questioned whether or not it would be appropriate to do so. If the aims of certain types of meditation are to develop insight into the ‘emptiness’ of the ‘self,’ while Western psychology claims that a healthy mind requires a strengthening of the ‘self,’ the question that ought be addressed at the outset is; can these contrary views of the self in terms of mental health be reconciled. I will examine this question and the possible implications of introducing meditation as a treatment protocol in the West.

#314 9:00 am
On Deconstruction, Post Modernism, and Christianity
Conor R. Anderson, Philosophy
Sandra Wawrytko, Philosophy

As post modernism gains momentum in the western world, its manifestations can often be surprising. Philosophical paradigm shifts are often that way, and it is the job of philosophers and other academics to find out exactly what is going onto engage the new movement, make the appropriate connections, and expose potential errors as people react strongly to the old ideological regime. Much has been said about post modernism, but little about its effect on Christianity, a religion and worldview that has impacted America and Europe like almost nothing else. A recent novel about one mans spiritual journey entitled The Shack provides an excellent opportunity to explore these connections by deconstruction, through a radical theological movement, and to the larger ideological principles in the background. The novel itself is just that a novel but only at first glance. The deconstructive methods/non-methods pioneered by Jacques Derrida and others help the critic move past the first glance to see what is really going on, what the author may have said without knowing it. With the deconstructive eye one can see three major post-modern principles emerge: (1) a disdain for logocentrism; (2) an extreme epistemological skepticism and accompanying questioning of authority; (3) a thoroughgoing religious pluralism. These principles, accompanied by others less explicit, are then seen as manifested particularly in statements of Christian theology. The author makes it clear that the Bible is not a definitive authority and that the Church is perhaps too mistaken and marred to be trusted. He continues to say that God’s love is more important than his justice, thus allowing for further tolerance of other faiths. The author goes so far as to eliminate the need for Jesus soteriological role formerly so central to the Christian faith. The theological principles expounded in the book are foreign to many Christians but at home in what is called the Emergent Church movement. The Emergent Church, though spurning definition in a very postmodern, Derridean fashion, can be appropriately defined as Christianity’s accommodation to post-modernism. Adherents to the movement and the theology they embrace are entirely consistent with the relativism, pluralism, and tolerance that define the new ideological regime.

#315 9:15 am
Socrates and Plato: Development of the Soul
David Kuttruff, Philosophy
Mark Wheeler, Philosophy

Many Plato scholars have asserted that the “early Socratic” dialogues consider the soul as having only one part while the “middle period” and “later” dialogues portray the soul as having three parts—the rational part, the spirited part (the will), and the appetitive part (the emotions). This paper examines the Socratic/Platonic exploration of the soul as revealed through the Platonic corpus and challenges the notion, especially as presented by Christopher Rowe (University of Durham), that there is a sharp distinction between the view of the historical Socrates as compared to that of Plato.

Session D-4
Oral Presentation: The Wide World of Business I
Saturday, February 28, 8:00 am – 9:45 am
Location: Chantico

#316 8:00 am
Sustaining the Integrity of M&A Due Diligence: An Examination of the Fair Value Environment
Gagandeep Singh, Accounting
Damon M. Fleming, Accounting

The integrity of due diligence analysis has been a major focus for corporate entities because of the high risks involved with merger and acquisition failures. Due diligence has been the process of
acquiring substantive information about an acquisition target before a deal is executed. This process is carried out through an examination of the following seven corporate elements: Macro environment, legal/environmental, marketing, production, management, information systems, and financial. Fair value assertions made in financial statements may unknowingly influence other corporate elements based on their unique dependence on finance and economics. This presentation describes an intensive study of fair value theory and how it may unknowingly affect the due diligence process in mergers and acquisitions. The study highlights the strengths and weaknesses of due diligence in several areas, the implications for an enhanced scope of due diligence, and a review of new managerial discretion.

#317 8:15 am

**Impact of Globalization on the Growth of the Creative Industries in Singapore**

Doug Pierce, Information Systems
William Saanwald, College of Business

The growth of creative industries in recent years was twice the rate of the world economy as a whole. Encompassing industries like advertising, architecture, arts and antiques, fashion, film, music, publishing, performing arts, software, and television, these lines of work will be key engines of future economic prosperity, employment, and trade. In order for nations to secure a global competitive advantage for their creative industries, they must continuously differentiate themselves against cultural homogeneity brought about by globalization and promote the distinctiveness of their local ability. Nowhere is this innovative or fail position more evident than in Singapore, the most globalized country in the world according to the A.T. Kearney/Foreign Policy Globalization Index. I studied abroad in Singapore for a year and my motivation stems not only from witnessing cultural identity stripped and realigned with a lifestyle packaged by globalization, notably the West, but my participation in it working full-time as an intern for the American company Apple Inc. my second semester there. Examining the sociological impact and business implications behind Singapore’s predilection for Western cultural products presents a problem for the city-state as they have imported to the detriment of their domestic creative industries and to the dilution of societal conditions that are contributors to creativity. Relying heavily on the skill and investment of foreigners for much of its success, Singapore lacks the self-confidence and risk-taking that leads to creativity. One survey found that almost 25% of young Singaporeans expressed a desire to be either Caucasian or Japanese [and] said they wanted to identify themselves with today’s leading economic and cultural powers: the United States, Europe and Japan (IHT). Without creativity, Singaporean creative industries cannot create new products and technology to compete on the global market.

#318 8:30 am

**Zimbabwe: From Landright Invalidation to Hyperstagflation**

Dennis Oriaifo, Economics
Edmund Balsdon, Economics

The disastrous economic meltdown experienced by the Southern African nation of Zimbabwe is a progeny of monetary, political and judicial policy inefficiencies. The crisis has lead to a complete collapse of the organization and management of the national economy which has resulted in a corrosive annual inflation. Currently, the estimated inflation stands at 231m%, unemployment over 80 per cent, life expectancy of 37 years and the acute inability of the Federal Government to deliver basic public and social goods and services. Cumulatively these effects have resulted in a severe national output decline and labour and capital flight which has further accelerated the dilapidation of the country. My study focuses on the detrimental secondary effects of the land right invalidation of 2000 which facilitated the disrepair of the Zimbabwean economy.

#319 8:45 am

**One-day Job Shadow Program**

Howard Tu, Marketing
Preston Chipps, Career Services

Problem: The educational experience at SDSU College of Business Administration (CBA) is missing a component. Students are faced with making a decision about choosing a major within the CBA on too little knowledge about the career possibilities of the major with no real hands-on experience in the field of choices. Statement of the methods: Allow 75 students to shadow working professionals at many prominent businesses around San Diego and ask them to do a survey at the end to find out the results and impact of their job shadow experience. Essential results or outcomes: 97.5% rate overall program GOOD or EXCELLENT; 100% would recommend the ONE-DAY Program to other students; 82.5% would recommend the ONE-DAY Program to other companies and working professionals; 100% said the ONE-DAY Job Shadow has help them with future career decisions. Conclusion: Provide job shadow opportunities for pre-business students to observe working professionals in their areas of business interest. The purpose of this service is to help pre-business students find the appropriate major and educational direction within the CBA. The ONE-DAY Job Shadow Program helps provide a more complete educational experience for students at the CBA by effectively tying together the classroom and real world experience.
Session D-5
Oral Presentation: Mexican Studies
Saturday, February 28, 8:00 am – 9:45 am
Location: Council Chambers

#320 8:00 am
Narrative Strategy in Ixpantepec Nieves Mixtec
Michael Bowen, Linguistics
Robert Underhill, Linguistics

A descriptive text analysis of four stories recorded by an elder speaker the Nieves Ixpantepec variant of Mixtec spoken in the western region of Oaxaca, Mexico. The description of narrative structure within these stories involves categorizing ways that morphosyntax serves to code patterns deemed characteristic of narrative function cross-linguistically as per Chafe and Labov (1972), et al. This focus on larger texts rather than discrete sentences offers learners and speakers the opportunity to see how the language works within a wider pragmatic context. The method undertaken involves: 1) editing the audio stream into intonation units using audio editing software. 2) transcribing and translating intonation units with assistance of native speakers 3) Creating a lexical database with the help of native speakers. 4) Development of didactic listening comprehension materials for classroom use. The project will serve as documentation for this particular variety of Mixtec of which, to the researcher’s knowledge, no other published studies have been made. Additionally, the developed and archived material will be made available for both heritage and non-native learners who may wish to gain access to spoken language from an elder speaker.

#321 8:15 am
El Zarco as Foundational Fiction and the Subversion of the Mexican Indian
Fernando Serrano Jr, Latin American Studies
William Acree, Spanish and Portuguese

In the book Foundational Fictions, Doris Sommer speaks of a specific type of romantic novels that served in the XIX century in Latin America as what she calls “foundational fictions.” Among the different characteristics that a novel must have in order to be considered a foundational fiction of a particular country, one stands out: social conciliation. In the Mexico of the XIX century there were many issues that required some sort of social conciliation. One of those issues was that of the Mexican Indians who were not yet incorporated, nor accepted, completely into the scheme of the formation of the Mexican nation. Sommer mentions that the novel El Zarco, written by Ignacio M. Altamirano between 1885 and 1888, can be considered a foundational fiction since it served the function of social conciliation between the three main social groups in Mexico—whites, Indians, and mestizos—by using as his main characters in the novel a Mexican Indian male and a mestiza female. I agree with Sommer in her general analysis of El Zarco and in its classification as a foundational fiction. Nonetheless, in order to be a foundational fiction of a particular nation we must first define what kind of nation that fiction was helping to found. Some questions that may help us clarify this issue, and which were not directly answered by Sommer, are: What kind of nation did Altamirano want to help found with El Zarco and his other novels? Who was mainly benefiting from his vision of that nation? How well was it based on the social and cultural reality of the Mexico of the XIX century? And, above all, what role did he designate to the different social groups that existed, and still exist, in Mexico—especially the Indians, group to which Altamirano belonged and in favor of whom many people assume that he advocated? In this study my goal is to show that the social conciliation that Altamirano promoted in his novels is not necessarily one that redeems the Mexican Indians but quite the opposite; it is one that continues their subversion. My assertion is that although it is true that Altamirano in El Zarco and other novels, makes Mexican Indians part of the national dialogue, he does it by juxtaposing them as “the other” in relation to Mexican whites, as a foreigner in his own country, as the one with the obligation to assimilate and not as the autonomous Mexican Indian who is ultimately in his native land and who, by much, outnumbers Mexican whites that claim to be “the norm.” Ultimately, it is my view that Altamirano does want to incorporate Mexican Indians into the national project but under conditions of cultural and social submission in relation to Mexican whites, and in that respect he resembled Mexican whites who had already been doing that from the beginning of the colonial period and whose legacies we continue to see in present-day Mexican society.

#322 8:30 am
La Frontera Nueva: Mexico, Manhood, and Mitchum in American Film
Jason Stuart, History
Elizabeth Cobbs Hoffman, History

In the aftermath of World War II, American masculinity was in crisis. Commented upon widely by journalists and academics, this crisis was the result of a number of factors, but its essence was the need for a redefinition of masculinity suitable for Cold War America. Film is a key cultural area in which this struggle can be examined. Four films starring Robert Mitchum made during the late 1940s and early 1950s present Mexico as a surrogate...
frontier for the vanished frontier of the Old West, long associated with the construction of masculinity. Their masculinity besieged at home, Mitchum’s characters are able to regain their manhood through their experiences in Mexico. Furthermore, this regained masculinity is one which meets the changing needs of America during the Cold War, namely a mixture of hardness to confront the communist menace and a tenderness toward women and family.

#323 8:45 am

Cortés’ Contribution to Machismo

Dexter Hough-Snee, Spanish
William Acree, Spanish & Portuguese

Though the present-day manifestations of machismo are common targets of social services and public health campaigns in applied fields, there remain several poignant questions that merit humanities-driven studies. Basham questions What pressures, for example, direct males toward a denigration of females in a machismo orientation? Why does the machismo syndrome tend to be more predominant in Latin societies than in those of Northern Europe? Furthermore, what are the historical origins of machismo that have enabled the social realities of the present day? I propose that the humanities are best equipped to answer these questions through interdisciplinary focus on the historical events (and texts) surrounding the conquest of Latin America and the resultant interactions between Iberian society and the indigenous peoples of Latin America. By further tracing these interactions through Latin American independence and into the modern era, both literature and history can contribute greater understanding of the foundations of machismo ideologies and the social realities that they facilitate. Humanities-driven contextualization of the machismo phenomenon must employ careful analysis of texts, with strict focus on the specific historical events and contexts surrounding their production. The present project intends to employ literary and historical perspectives to discuss the European origins of machismo found in mainland Mexico as demonstrated by Hernán Cortés documentation of the conquest of México between 1519 and 1520 in La segunda carta de relación. As historiography, Cortés text documents patriarchal acts carried out by his expedition; as a probanza de mérito (petition of merit), his letter presents machista ideology and rhetoric by simultaneously employing the parameters of the chivalric romance novel and contradicting one of its strongest tenets, the reverence of the female. To chart how the first texts composed in Latin America demonstrate gender attitudes and ideologies born of yet distinct from those of the European continent, I intend to contextualize the narrative portion of Cortés text within the chivalric romance genre, with emphasis on its canon, Amadís de Gaula. This document how Cortés rhetorical dealings with the other for the purposes of this essay, the female subaltern differ from the narrative space that the woman occupies in Garci Rodríguez de Montalvos Amadís de Gaula. This comparison then facilitates analysis of how Cortés attitudes towards gender relations depart from those of his predecessors in Western Europe and give way to distinctly Latin American patriarchal social attitudes born of the colonial process. In the larger task of identifying the historical origins of machismo, this study ought to ultimately enable identification of the earliest European contributions to machismo in mainland Latin America during the conquest of Mexico.

#324 9:00 am

The Resurgence of the Tijuana Punk Scene

Ana Medina, Chicana and Chicano Studies
Norma Iglesias-Prieto, Chicana and Chicano Studies

My investigation seeks to find what has led to the current resurgence in punk movement among the youth in the city of Tijuana. The resurgence of the Tijuana punk scene is occurring in a city where There are more than 251,000 daily crossings between Tijuana and San Diego (Iglesias, 2003). Tijuana has challenges and accelerated processes as a result of globalization that express themselves graphically. Theorists look to Tijuana because of the tangible ways in which theories about globalization manifest themselves, hence why it is considered a postmodern laboratory (Bhabha 1994, Canclini 1996, Gomez-Peña 1996, Iglesias 2003). Carles Feixa suggests that punk style for youth groups signifies a metaphor of crisis and the youth of Tijuana is a perfect example. Punk also functions as a youth movement that confronts global issues and question current society’s norms and customs. It is also important to focus on the positive aspects of how the youth is protesting and networking to negotiate a temporary space (outlet). Other investigators Germán Muñoz and Martha Marín who have had similar research on punks agree that, The active and creative engagement of young people in the production of meanings, and of other ways of existing within their own cultures, has been a long-neglected topic within the social sciences (130). By creating literature about the youth of Tijuana, there is the hope that the findings will help in providing more adequate solutions and awareness of the conditions of a largely underserved population. My methodology follows what is used to collect ethnographic qualitative data that recognizes the value of a participants experience. Since my research deals with members of the punk scene in Tijuana, the analysis of the punk scene will be made in two forms. The first is through participant observation. Secondly it will be through videos, photographs, and interviews made in two forms. The first is through participant observation. Secondly it will be through videos, photographs, and interviews of key members that follow the punk scene. Based on my current research I have found that the members of the punk scene view punk music as a necessary and relevant means of voicing their realities. The continuing and increase in violence within the city makes it a more feasible outlet for the youth. My presentation will be on my findings.
Session D-6
Oral Presentation: Mechanical Engineering
Saturday, February 28, 8:00 am – 9:45 am
Location: Presidential Suite

#325 8:00 am
Production of Advanced Hydrogen Storage Components via Modified Vapor Deposition Processes and Spark Plasma Sintering Consolidation
William Bradbury, Mechanical Engineering
Eugene Olevsky, Mechanical Engineering

Alternative energy technology is a promising resource to curb global consumption of non-renewable fuel sources. Energy storage and transport is a key issue facing researchers in this scientific community. Material Science has revealed highly promising solutions to these problems in the past twenty years. Utilizing vapor deposition and subsequent consolidation via direct current (DC) spark plasma sintering (SPS), this research project aims to create advanced composite nanostructured materials in order to advance the science of solid state hydrogen adsorption technology. Vapor, solution, arc-discharge, and physical vapor deposition techniques will be employed in order to fabricate composite materials with high specific surface area, favorable pore sizes and advanced spill over characteristics. Additionally this project intends to produce structurally sustainable hydrogen storage components with complex nanostructures for highly efficient hydrogen fuel storage systems capable of performing reliably through cyclic adsorption loading.

#326 8:15 am
Numerical Modeling of the Effect of Histidine Protonation on DNA Hybridization and pH Distribution in Electronically Active Microarrays
Bhuvnesh Arya, Mechanical Engineering
Samuel Kassegne, Mechanical Engineering

This study investigates, through numerical modeling, the effects of the protonation of histidine buffer in promoting DNA hybridization in electronically active microarrays within a limited pH range. The numerical model framework developed here consists of a number of physics phenomenon (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 buffer. The study demonstrates, through a numerical model and comparison with published experimental results, that the increase in acidity near anodes due to the hydrolysis of water can be neutralized by a histidine buffer creating a relatively stable pH environment. To account for the dependency of DNA hybridization on the pH of the buffer used, the study also introduces a new experimental results-based DNA hybridization efficiency parameter into the numerical model.

#327 8:30 am
Experimental Investigation of Organic MEMS/NEMS Based Bulk Heterojunction Photovoltaic Cell with 3D Graphite Electrodes
Mohammad Majzoub, Mechanical Engineering

This study investigates experimentally the performance and fundamental photovoltaic behavior of a new generation of all-polymer photovoltaic cells made of a large array of high-aspect ratio three-dimensional charge-collecting carbon electrodes surrounded by a matrix of polymer photoactive material. The new 3D architecture addresses two fundamental weaknesses in current PV technology by (i) decreasing diffusion length for charge carriers through new 3D electrode posts, and (ii) providing deeper optical thickness through high-aspect ratio charge collectors. In this study, the efficiency of such a new architecture of charge collectors, the effects of PEDOT:PSS (poly(3,4-ethylenedioxythiophene) poly(styrenesulfonate)) layer on anodes, density of microelectrode array, and effect of heat treatment of photoactive material are investigated. Further, the contribution of several layers of photoactive material with tailored properties that is enabled by high aspect-ratio of charge collecting electrodes towards the overall efficiency is experimentally investigated.

#328 8:45 am
Novel Spark Plasma Extrusion of Aluminum Powders
Ahmed El Desouky, Mechanical Engineering
Khaled Morsi, Mechanical Engineering

The interest in spark plasma sintering has been growing considerably over the past few years. This has been brought about by the unique advantages of the process, which include reduced sintering temperatures and times and the production of materials with unique microstructures and properties. Despite its current reputation as an outstanding process that has solved major problems such as nano-powder consolidation, it has so far been largely limited to the manufacture of simple shapes, due to its inherent geometric configuration. In this paper we present results on spark plasma “extrusion” that can allow the production of extended geometries via electric-current processing. Results on the processing and microstructure of spark plasma extruded aluminum are discussed.
Session D-7  
Oral Presentation: Applied Mathematics and Physics  
Saturday, February 28, 8:00 am – 9:45 am  
Location: Quetzalcoatl A

#329 8:00 am  
Comparative Study of Grid Connected Photovoltaic Arrays  
Tyler Otto, Physics  
Alan Sweedler, Physics

As renewable energy becomes more prevalent, more information will need to be available to inform people of how exactly different technologies will behave. While the underlying physics of solar cells is well understood, wiring many cells together to form a panel, and then many panels together to form an array, makes the system behavior more complicated. This research involves collecting data on temperature, solar radiation, and the performance of five different solar arrays. The five different arrays used include single crystal, multicrystal and amorphous silicon arrays; those most commonly installed. By creating a model, which predicts the power output as a function of solar radiation and temperature, a side-by-side comparison of different arrays can be made. Current predictive models are not useful for a typical system, which is limited to operate at the maximum power point, thus adaptations to previous models have been made. This model accurately predicts the power output of different silicon based solar array. The performance data is fit to the model through use of a linear least squares program. The program returns fit parameters, which are related to the reduced power output caused by increased temperature, as well as the non-linear effect of solar radiation on output.

#330 8:15 am  
Computational Modeling of Interactions Between Bose-Einstein Condensates and Ince-Gaussian Laser Beams  
Charles Tally, Physics  
Michael Bromley, Physics

When a cloud of atoms is confined and cooled down to temperatures very near absolute zero they collectively begin to form a state of matter called a Bose-Einstein condensate (BEC). In this state, each atom tends toward the lowest possible energy configuration and the group begins to behave more like a coherent wave than a classical distribution of particles. Our computational research builds models that study how this exotic form of matter’s wave-like properties can be harnessed to go well-beyond what is possible with traditional ‘light’-based optics. We are investigating many fundamental properties of BECs by modeling the manipulation of them by shining specialized laser beams, called Ince-Gaussian Beams (IGBs), through them. These lasers come in a variety of flavors, each of which carries with it an amount of orbital angular momentum that can be transferred to a BEC. Our research examines the stability of these photon-matter interactions and explores the use of IGBs to control and manipulate BECs in physics laboratories.

#331 8:30 am  
Influence Of Spatial Dependence on the Eigenvalue Spectrum of Complex Networks  
Joris Billen, Physics  
Arlette Baljon, Physics

Many real life networks are known to exhibit a spatial dependence (SD), i.e. the probability to form a link between two nodes in the network, inversely depends on the distance between them. We investigate the influence of SD on the eigenvalue spectrum of networks. By increasing the SD in Erdos Renyi (ER), scalefree, and small-world networks we find that the eigenvalue spectrum becomes asymmetric, as a result of the increased clustering in the system. We quantify this asymmetry by the skewness, kurtosis, and the change in highest and lowest eigenvalues of the spectrum as a function of SD. Our results show that the eigenvalue spectrum can be used as a tool to detect SD in real-life networks. We illustrate this ability for the eigenvalue spectrum of a spatial dependent polymeric gel.

#332 8:45 am  
Anisotropic Grain Evolution during Sintering Using a Potts Monte Carlo Simulation  
Gordon Brown, Mathematics and Statistics  
Eugene Olevsky, Mechanical Engineering

This research is on the use of a 2D Potts Monte Carlo (MC) algorithm to simulate the evolution of the granular structure during sintering of materials with anisotropic energies. Despite the wide use of MC simulations for understanding the microstructural evolution of sintering bodies, few of these models accommodate anisotropic grain growth. Potts MC models are widely used in many fields. In most of these applications, artifacts resulting from the underlying lattice structure are a concern. The algorithm developed in this research incorporates the sintering mechanisms of grain growth, pore migration, and vacancy annihilation with anisotropic energies. Wulff plots are used to incorporate the anisotropy in the surface energy of the grains. Artifacts imposed by the underlying lattice structure are identified and a solution is
proposed. The ability to incorporate anisotropic grain growth in our meso-scale modeling allows the investigation of anisotropic development under several different situations to better understand observed anisotropic phenomena like patterning in sintered materials.

#333  9:00 am  
**Implementing Low Density Parity Check Code Decoders**
Raymond Moberly, Mathematics and Statistics 
Michael O’Sullivan, Mathematics and Statistics

Low Density Parity Check (LDPC) decoding using the iterative sum-product algorithm can be achieved in programmable logic implementations (e.g. Field Programmable Gate Arrays (FPGA)) at performance rates that outperform software-based decoders. Research among LDPC experts has shown that greater block length LDPC codes achieve better bit error rates (BER) at comparable signal to noise ratios (SNR). Software-based decoder implementations retain the most flexibility and can accommodate these necessary block lengths. A hardware / software codesign achieves the combination of hardware speed and software flexibility for the decoder system. A processor-enhanced FPGA offers a single chip solution for an implementation composed of hardware and software, allowing for tight coupling of the hardware and software pieces of the partitioned design, minimizing the overhead as probabilistic data is conveyed between the software and the hardware-based coprocessor.

#334  9:15 am  
**Structure Enhancement Diffusion and Contour Extraction for Electron Tomography of Mitochondria**
Carlos Bazan, Computational Science
Peter Blomgren, Mathematics and Statistics

The interpretation and measurement of the architectural organization of mitochondria depend heavily upon the availability of good software tools for filtering, segmenting, extracting, measuring, and classifying the features of interest. Images of mitochondria contain many flow-like patterns and they are usually corrupted by large amounts of noise. Thus, it is necessary to enhance them by denoising and closing interrupted structures. We introduce a new approach based on anisotropic nonlinear diffusion and bilateral filtering for electron tomography of mitochondria. It allows noise removal and structure closure at certain scales, while preserving both the orientation and magnitude of discontinuities without the need for threshold switches. This technique facilitates image enhancement for subsequent segmentation, contour extraction, and improved visualization of the complex and intricate mitochondrial morphology. We perform the extraction of the structure-defining contours by employing a variational level set formulation. The propagating front for this approach is an approximate signed distance function which does not require expensive re-initialization. The behavior of the combined approach is tested for visualizing the structure of a HeLa cell mitochondrion and the results we obtain are very promising.

Session D-8  
Oral Presentation:  
**Learning Approaches in STEM Curriculum**  
Saturday, February 28, 8:00 am – 9:45 am  
Location: Quetzalcoatl B

#335  8:00 am  
**Effort versus Ability in Mathematics**
Elizabeth McEvoy, Education  
Lisa Lamb, Education

Although some people may understand that effort plays a role in students success in school, our culture seems to value students natural ability or effortless success. We thus sought to determine whether students and parents believe that effort plays a role in a students success in mathematics. Students who do not believe they can improve will not put forth the effort required to improve. To conduct our research, we collected responses from an online student survey (n=133), an online parent survey (n=35), and a focus group (n=7). The parent survey was available in both Spanish and English. Survey results were received from fifth graders (n=100) in two school districts and ninth graders (n=33) in one of these districts. We found most parents had some degree of a growth mindset. They saw effort, not natural ability, as the arbiter of school success. Yet, evidence showed a sizeable number of parents had some degree of a fixed mindset. This group believed that effort would not necessarily result in improvement. Although most students had a growth mindset, one group, the fifth grade GATE (Gifted and Talented Education) math class, was characteristically different. These students were less likely to ask their teacher questions during class compared to non-GATE math students (52% vs. 71%). The GATE math students waited to ask their teacher after class (43%) compared to the non-GATE students (52% vs. 71%). The GATE math students waited to ask their teacher after class (43%) compared to the non-GATE students (8%). The GATE math students never asked their classmates for help, while 11% of the non-GATE students did ask a classmate. Some GATE students reported an inflated grade when asked about most recent grades. At least four inflated their grades and another six stated they were not sure. These results may suggest the GATE students were reluctant to publicly ask questions and report their actual grades in order to preserve the perception that their ability or intelligence was innate. All students need support and encouragement to increase their effort in
mathematics. It is not just the obviously struggling students who need help. High achieving students also need support to ensure they are learning how to learn and how to take risks to improve academic success.

**#336 8:15 am**  
**Improving College Matriculation through Curricular Realignment**  
Amanda Opperman, Education  
Alberto Rodriguez, Policy Studies in Language and Cross Cultural Education

As standardized testing efforts such as the No Child Left Behind Education Act keep public attention focused on student achievement, much energy and resources have been applied toward helping high school seniors graduate with at least a standardized basic skill set. Subsequently, the California Department of Education requires that all graduating high school students pass the California High School Exit Examination (CAHSEE). However, for students who want to pursue a college education, proving a basic level of proficiency for high school graduation is not enough. In addition to passing the CAHSEE, college hopefuls who have set their eyes on a California State University (CSU) campus must complete a predetermined set of courses known as the A-G requirements to be eligible for admission. In 2006, however, CSU reported that 46% of the 45,961 incoming freshmen who had graduated from high school with CSU A-G requirements for admission were not considered proficient in the skills necessary to place into introductory composition courses and required remediation in developmental courses before being admitted into the introductory writing courses required for their bachelors degree. Moreover, nearly half of the aforementioned college freshmen not only passed the A-G required courses but passed them with at least a B equivalent grade point average. These statistics reflect the current misalignment between high school standards and college expectations in California, which results in added costs of education and delays undergraduate degree completion for students who spent their high school years excelling in college-preparatory courses. This project consists of a meta-analysis of prior studies concerning the transition from California high schools to the CSU system and a survey of measures taken by the CSU to adequately prepare high school students for introductory courses at their universities. The research goal of this project is to analyze prior studies as a means to 1) localize the problems that contribute specifically to the curricular misalignment between California high schools and CSU writing programs and 2) identify best practices for realigning California’s secondary and postsecondary systems, namely those included in the CSU- instituted Early Assessment Program and Twelfth Grade Expository Reading and Writing Course.

**#337 8:30 am**  
**An Experimental Study of Instructor Immediacy in the Wimba Virtual Classroom**  
Lorah Bodie, Educational Technology  
Marcie Bober-Michel, Educational Technology

The proliferation of technology and global access to web-based resources have given rise to an array of new teaching and learning options. In higher education the move to alternative forms of delivery derives from a desire to serve an increasing number of students with diverse needs and interests. Virtual educational environments (VEEs) can, in fact be an effective alternative to traditional classroom environments, facilitating access to participants regardless of geographic location and free of time constraints. There are however, serious interpersonal challenges associated with virtual teaching, not surprising given the social nature of learning. Relations with others affect cognitive understanding and knowledge construction (Richardson & Swan, 2003), in other words, what people learn and how well they learn it. Social interaction in VEEs unfolds differently than in traditional classrooms and enables people to relate to each another in new and innovative ways. The social underpinnings of learning make it important to understand how people experience themselves in virtual environments, as well as how they form relationships and build community. Social presence is a critical factor of a communication medium that plays an important role in building community and improving the effectiveness of instruction (Richardson & Swan, 2003). The components of social presence include the words conveyed, verbal and non-verbal immediacy cues, and the context of the communication. The immediacy component of social presence is most often defined as perceived psychological or physical closeness (Christopher, 1990) which is created in part by cues such as smiling, a relaxed body posture, speaking directly to students, utilizing humor and modulating the voice (Hostetter & Busch, 2006). A number of researchers have demonstrated that instructors who use or embrace verbal and nonverbal immediacy behaviors facilitate interaction and reduce psychological distance. There is also evidence for improved learning outcomes including satisfaction with learning and increased student motivation when highly immediate instructor behaviors are employed (Andersen, 1979; Gorham, 1988; Kearney, Plax, & Wendt-Wasco, 1985). Few studies have investigated instructor immediacy and its relationship to learning outcomes in virtual educational environments. It is also important to assess the effectiveness of methods by which immediacy can be cultured into the design, delivery, and evaluation of computer interfaces and communication tools—and this study aims to contribute to this emerging research base. The researcher employed a randomized two-factor design to explore the effects of immediacy and type of mediated learning environment on satisfaction with learning, perceived learning, and actual learning. The study replicated some of the experimental research
design elements utilized by Witt (2000), and Schutt (2007), the main element being a 15 minute pre-recorded teaching session where instructor immediacy was manipulated to create higher and lower conditions. In addition to manipulating immediacy, the researcher explored two different technology-infused strategies for content delivery: one that combined full-motion video of the instructor with audio, and text chat; and another that replaced full-motion video with a still photo of the instructor. The findings have implications for instructors and instructional designers who are seeking information to aid in the development of teaching and learning resources in virtual settings.

Reforming Undergraduate STEM Courses for Preservice K-6 Teachers: How Much Does Funding Matter?
Corinne Lardy, Education
Cheryl Mason, Education

A great deal of time and resources are invested in professional development programs, such as the NASA Opportunities for Visionary Academics (NOVA) program, designed to improve the teaching of undergraduate STEM (science, technology, engineering, and mathematics) courses required for pre-service teachers. However, little if any longitudinal data are gathered following professional development, especially for those not completing the professional development process. The goal of this study was to examine the long-term success of undergraduate STEM faculty in instituting and sustaining reforms in their courses following participation in the NOVA program, although NOVA did not fund these particular faculty to support the institutionalization of reform efforts. Data were collected through an online survey designed by the author, based on prior research of others, to assess the subjects perceived success in instituting and sustaining their proposed reforms, as well as the factors that may have influenced that success. Ultimately, 31 faculty members from 26 non-funded universities who participated in the NOVA program responded to the survey. Frequencies of multiple-choice responses were assessed, and common themes among open-ended responses were coded and recorded by prevalence among individual subjects and/or faculty teams. Results support a complex combination of factors affecting the ability to institute and sustain STEM course reform, including those related to social and practical aspects, as well as motivation. Lack of NOVA funding to complete the professional development process did not result in a complete abandonment of reform efforts for a majority of subjects, especially when other sources of funding and/or a supportive social university network were secured. Results of this study can inform others who are striving to reform undergraduate STEM courses without extensive external funding.

School Web Sites Within The Educational Marketplace: A Case Study Investigating The Parents as Engaged Consumer-Users
Jane Beeman, Educational Technology
Marcie Bober, Educational Technology

Schools—like their corporate counterparts—recognize the many advantages that the Internet affords. Today’s schools vie for students, and thus use the web to market their services and showcase their management team (administrators, teachers, staff) and academic accomplishments. In a sense, then, web sites are the public face of education; those that are well-designed and multi-featured can enhance a district’s public image and create the perception of excellence and competence. This case study explores how one suburban, K–8 school district approaches web site development, specifically, the process by which decisions about design, development, and maintenance are made (and by whom); the ways in which they engage those who explore them—with a particular focus on parents; and, how well the sites adhere to generally recognized design attributes. Data were gathered through interviews with school administrators, document review, web site analysis, parent surveys, and parent focus groups. Results offer information to policy makers, administrators, and site designers regarding principles of web design unique to parents as educational consumers. Principles emerging from the case study can lead to additional research not only in the field of education, but, also, in the fields of web design and marketing.

Exploring the Conceptions of Students Taking Upper-division Mathematics Courses: Are More Courses Solely Enough to Teach K-3 Mathematics?
John Siegfried, Education
Randolph Philipp, Education

Mathematics education has always been a major concern in the United States, especially with the release of each new national report assessing students mathematical achievement. Educational reform policies, like No Child Left Behind, require that teachers attain more advanced degrees or take more advanced mathematics classes in an effort to improve students mathematical achievement and understanding (Ball, Hill, & Bass, 2005). However, maybe teachers do not need more advanced mathematics courses, especially with Begles (1979) research that suggests a negative or insubstantial correlation between teachers
with post-calculus courses or credits and higher student achievement. This study grew out of an NSF-funded research project called Studying Teachers Evolving Perspectives (STEP). The STEP Project is currently working with pre- and in-service K-3 elementary school teachers to determine what effect sustained professional development has on the perspectives of these teachers. An additional group, university students who are currently taking upper-division mathematics courses, was added as a comparison group for the results on mathematical content. This study addresses those results. The thirty-three participants were given seven paper-and-pencil tasks and one computer-based task. These tasks were questions about K-3 mathematics that were based in the context of children’s thinking. Each task was scored on a zero to four rubric. The rubrics were created previously for the STEP project and were used here to compare with the data from pre- and in-service teachers. The students taking upper-division mathematics courses did as well as or better than the teacher groups on all but two tasks. In particular, they excelled at using algorithms and following procedures, as expected. However, it seems that most were unable to give a meaning to the procedures. The participants also did poorly when asked to come up with multiple strategies or solutions. This seems to indicate that while more mathematics classes might help students gain more content knowledge, this knowledge alone may not be enough when teaching mathematics to children.

#341 9:30 am
A Beginning Conception of Speed When Acceleration is Constant
Charles Hohensee, Mathematics and Statistics
Joanne Lobato, Mathematics and Statistics

What kind of conception should beginning algebra students have of constantly increasing speed? This is the central research question that this study is attempting to address. This is an important question for two reasons. First, constant acceleration seems to be an underrepresented topic in both mathematics education and science education literature. In the mathematics education literature, acceleration is rarely discussed. In the science education literature, acceleration is mainly addressed in relation to a net force. What seems to be missing is a focus on the meaning of a rate of a rate, on the meaning of the units for acceleration, on the kind of motion that constant acceleration entails, and on the relationship between constant acceleration and quadratic distance-time functions. My research is part of a larger NSF-funded study, directed by Dr. Joanne Lobato, which investigates the ways in which features of classroom environments influence what students attend to mathematically. As part of her study, I designed and taught fifteen after-school sessions with nine 8th graders at a local middle school, where we explored constant acceleration and quadratic functions together. At the end of the sessions, the students participated in an hour-long, individual interview with a researcher from Dr. Lobato’s research team. Two interesting findings emerged from my analysis of the interviews. First, when students drew diagrams to explain their understanding of constantly increasing speed, some used their diagrams as tools, while others did not. Those who had developed a tool perspective for their diagrams had a powerful resource with which to think about distance, speed and acceleration. Second, an important building block for conceiving of constantly increasing speed seems to be the ability to find the distances traveled each second and to compare those distances as quantities themselves. The students that were able to conceive of the elapsed distances as quantities were better able to conceive of changing speeds. These findings can be directly applied to mathematics classrooms. Promoting diagrams as tools and elapsed distances as quantities are tangible and manageable goals that could help support students early conceptions of constantly increasing speed.

Session D-9
Oral Presentation: Creative Arts and Writing II
Saturday, February 28, 10:15 am – 12:00 pm
Location: Backdoor

#342 10:15 am
Water Project
Lyubov Klimova, Art
Patricia Cué, Graphic Design

In the U.S., a culture of disposability and consumption has put a strain on many natural resources, especially fresh water. Because water is always available, people don’t recognize that there is a problem, and so are not motivated to change their habits. In researching public opinion about water consumption, I discovered that people will conserve water only if they believe there is a dire need to do so. By identifying consumers motivational barriers, it became apparent that the messages for behavior modification needed to be clear and strong. Bringing the hidden aspects of water appropriation to the public’s attention and conveying a sense of urgency could inspire people to conserve water through sustainable behavioral changes. It is equally important to find a common ground between the various demographics and then to customize messages using different languages and media. The...
key issue seems to be a lack of awareness: people just don’t realize the scale of the problem. This project aims to inform and educate people about how urgent and necessary it is to adopt habits designed to conserve fresh water. The medium through which the message is distributed is a crucial factor in water conservation. In order to reach as many people as possible, it’s vital to identify which forms of media people most often interact with. For this project, three commonly used objects, a reusable water bottle, a T-shirt, and a shower curtain, were chosen as vehicles (media) for conveying three different messages. These messages are 1) H2Otrition Facts (relating them to the Nutrition Facts) which give the consumers informative data concerning water use, 2) a Caution Water Conservation Zone sign, and 3) a graph showing data on the relationship between an increase in water consumption and the scarcity of fresh water. As a result of these easily accessible messages, consumers will be more conscious of their water use, and will be motivated into making simple conservation-based changes in their daily habits.

#343 10:30 am

Water: A Precious Resource
Namita Sharma, Art
Patricia Cué, Art, Graphic Design

Water is a political and social issue in developing countries such as India, where one of the major concerns is providing fresh water to every household, from cities to villages. There is a social and cultural division between people living in flats, bungalows, or houses, with running water twenty-four hours a day, and those living on the street, on row houses, or in slums, who rely on public taps provided by the government. When the government fails them, they are forced to rely on water tankers, or even on shady local entrepreneurs, who charge monthly fees for illegal supplies of water. In such scenarios, women and children often queue for hours to get their daily supply. For these people, the struggle for water has become part of their daily routine they fight for it; and, if necessary, they go without. My objective is to create awareness of the amount of water that is used in everyday tasks and how wastage could be avoided in India by using simple domestic tools. My intended audience is the people living in flats, bungalows, or houses who, because they have the privilege of running water, tend to value it less and so waste more. I have designed a campaign titled H2O Precious that works around the idea of using household utilitarian objects to save water. Household and personal routines require water on a daily basis, and this leads to significant waste. This campaign suggests that everyday utensils, readily available around the house, can dramatically reduce the level of waste. A bucket, a mug, a glass, and a broom are used throughout the campaign as mediums to suggest water-saving methods. Each poster and application communicates how changing certain personal hygiene and housecleaning habits can help save this precious resource.

#344 10:45 am

Afro-Cuban Religious Experience in the Artistic Aesthetics of Belkis Ayon (1967-1999)
Patricia Lettieri, Art
Nancy Deffebach, Art

As a Cuban citizen, the artist Belkis Ayon was a product of her culture. The people who settled Cuba came from diverse backgrounds, including areas of Africa, and Ayon’s art reflected her Afro-Cuban background. The questions to be addressed include: how has Belkis Ayon used her Cuban background to construct her identity? How is her identity evident in her art? How can the viewer of her art interpret what is seen? My thesis is that Belkis Ayon has used Abakua symbolism, either intentionally or psychologically, to place her personal concerns with life in the open for the viewer to observe. My approach is to describe Ayon’s personal background, and to connect the specific iconography used in Abakua symbolism with the art of Belkis Ayon. To accomplish this I focus on visual examples of her work using her Restlessness series to draw out her emphasis on Abakua symbolism and to connect her artwork with the circumstances of her early death. Ayon died at the age of 32 by her own hand. One conclusion to be drawn is the strong possibility that her death may be ideologically connected to the death of the mythological Sikan of Abakua religion.

#345 11:00 am

Extraordinary at 100
Wendy Shapiro, Art
Michele Burgess, Art, Design, and Art History

My inspiration to create this book came from Art of the Book at San Diego State University, taught by Michele Burgess. I was asked to create a book inspired by a piece of art from the Mingei International Arts and Crafts Museum located in Balboa Park. Eva Ziesel, a well-known industrial designer, was being exhibited at the Mingei at the time. Ziesel’s work consists of such elements as color, shape, material, form, dimension, transparency, reflection, symmetry, and luminosity. Ziesel, alive and one-hundred years old, created a variety of work that spans a century. While viewing the exhibit I became mesmerized by one of her pieces made out of a reflective material in which I was able to see myself; my reflection could be seen in a candle holder, a vase, and salt and
pepper shakers. After taking photographs of her art from many angles, I uploaded the images to the computer, where I began manipulating the images by rotating and flipping them to create elaborate patterns. Impressed by the illusion, I went back to the museum and took many more photographs. Ziesel’s array of work led to many unique images. I became mesmerized by the unique patterns that were created by each photograph taken at the museum. The images consisting of everyday objects became lost in a sea of shapes and colors that resembled that of a kaleidoscope. Although the patterns were magnificent to look at they were flat and lacked depth. By layering multiple patterns per page and removing a different shape piece from each pattern, I was able to create dimension in a visual, appealing to the eye. The handmade book consists of thirty-three pages with three patterns on each page and the two end-sheets with a single pattern, together representing the one hundred years of Ziesel’s life at the time the project was completed. I added the magnifying glass as a second layer to the book. When looking at the book, one might not notice where the patterns originate at first, but if one takes a closer look, one can see a teapot, a table, a vase, a candleholder, and other objects created by Ziesel.

#346 11:15 am

**Virtual Water Revealed**

Kizzy Ezirio, Art
Patricia Cue, Art, Graphic Design

The world’s growing water crisis is greatly linked to consumerism, as to produce everything we purchase requires an astonishing amount of water. Unfortunately, consumers are unaware of the water cost of goods and are blindly soaking up the world’s water through food, beverages, and clothing; even more so than drinking, cooking or washing. In addition, agricultural water accounts for nearly 70% of the freshwater used throughout the world. In California today, you may save more water by not eating one pound of beef than you would by not showering for six entire months. The term virtual water is used to refer to the amount of water consumed in the production of industrial and agricultural products. When it comes to agricultural goods, the virtual water amount may vary immensely from one product to another. For instance, to produce one pound of tomatoes in California, 23 gallons of water is needed while one pound of beef consumes 2,500 gallons. In addition, buying organic, unprocessed, locally grown or seasonal produce may significantly help save water. There are also health benefits linked to eating less meat, more fruits and vegetables, organic and whole foods. By creating a system that will allow the consumer to visually identify and compare the amount of virtual water for each agricultural product, I hope to help consumers make water wise decisions. I do not intend to favor vegetarianism or any other diet, however I plan to illustrate the hidden virtual water data and let the consumer make their own choices based on their personal beliefs and dietary needs. Perhaps one family will choose to eat less beef during the week while another family will choose a variety of seasonal fruits. A master symbol, which visually breaks down into four levels, was created to represent the different amount of virtual water. This symbol will be used in informational materials within the grocery store and receipts to show the consumers total virtual water purchase. The system is then divided into three categories to be placed on price labels throughout the supermarket, alerting consumers of the virtual water amount at point of purchase. Each category is represented by a different color: Red: meat; Yellow: dairy; Green: fruits, vegetables and grains. The colors were chosen according to the general water intake of each category, red being most and green less. These categories may also be used in printed materials to compare three or four similar products with one another. For example, within the dairy category, milk, eggs, and cheese can be visually compared with one another in terms of their water intake. By making virtual water visible, I hope consumers will choose to cut down their virtual water footprint the best way individually suited. It might be by eating more whole foods, minimizing processed foods, not wasting food, and/or eating less meat. Whatever it is, it will make a huge impact in the world’s scarce water sources and will hopefully save water for those who truly need it.

Session D-10

Oral Presentation:
Biochemical and Physiological Life Sciences
Saturday, February 28, 10:15 am – 12:00 pm
Location: Calmecac

#347 10:15 am

**Chemical reactivity of Native Cysteines of Human IkBalpha**

Robert Koehler, Chemistry
Tom Huxford, Chemistry

NF-kappaB is a transcription factor that regulates the expression of genes involved in immunity, inflammation, and cell survival. NF-kappaB is present in resting cells in mammals as a complex with its inhibitor, a protein known as IkappaBalpha. The beta subunit of the IkappaB Kinase complex (IKKbeta) is responsible...
for attaching two phosphates to the complex-associated IkappaBalpha. Despite years of intensive study, a structure for IKKbeta has not been determined. The aim of this project is to prepare an ATP-conjugated version of IkappaBalpha, the substrate of the IKKbeta subunit, in order to generate stable IKKbeta/IkappaBalpha complexes for crystallization trials. We propose a two-step sequence. In the initial phase we will purify IkappaBalpha and do a kinetic study to test the reactivity of native cysteines toward maleimide-conatining small molecules. Based on the results of this experiment, we will then design IkappaBalpha cysteine mutants so that our reactive cystine can be targeted. In phase two, we will synthetically create an ATP molecule which has the ability to covalently bond to the highly reactive cystidine within IkappaBalpha. ATP binds with high affinity to the kinase domain of IKKbeta. IkappaBalpha will therefore be permanently attached to IKKbeta. After complex formation and protein purification, we will crystallize this end product and study the specific binding activities of the IKKbeta/IkappaBalpha complex.

#348 10:30 am
Confirming Target Gene Silencing by Cytotoxic Antisense Oligonucleotides
Karen Schuerenber, Chemistry
Tom Huxford, Chemistry

Antisense DNA technology is a powerful molecular biology tool for disrupting mRNA prior to its translation by the ribosome. In collaboration with a local biotechnology company we set out to test the hypothesis that antisense oligonucleotides derived from cancer cell sequence databases and engineered to recognize multiple gene products can function as selective killers of cancer cells in culture. In order to test this hypothesis we have transfected individual antisense oligonucleotides into seven different cancer cell lines in culture, extracted total RNA from the transfected and control cells, and used reverse-transcription-PCR to generate cDNA libraries. To test whether or not specific mRNAs have been down regulated, we have performed quantitative-PCR reactions with primers designed against target and control genes. The data on mRNA expression levels has been correlated with toxicity levels in cells transfected with the experimental oligonucleotides using a colorimetric MTT assay that tests for cell viability. In control experiments with oligonucleotides designed to target the cell cycle gene survivin, we observed a correlation between decreased expression of survivin mRNA and cell viability. We are now prepared to start screening our experimental antisense oligonucleotides.

#349 10:45 am
Identification of a Cardiac Pathogen Responsible for In Utero Death of a Fetus
Uzoagu Okonkwo, Biology
Ralph Feuer, Biology

Recent studies have indicated that group B coxsackievirus, a member of the enterovirus family, has been associated with the onset of myocarditis and pericarditis in the heart tissue of infected individuals. Neonates are particularly susceptible to infection for reasons that currently remain controversial. Group B coxsackieviruses infect heart tissue by using the coxsackie and adenovirus (CAR) receptor located on the extra-cellular domain of the host cell. Following entry into the cell, this cytoplastic virus shuts down host cell translation via the actions of a multitude of different virally-encoded proteins. The virus then commandeers the cellular machinery to replicate its own genome and produce its own structural and non-structural proteins. These processes result in necrosis of the cardiomyocytes, inflammation of the myocardium, and the eventual enlargement of the ventricular walls. The long term sequelae of persistent coxsackievirus infection may lead to dilated cardiomyopathy, a condition that often leads to cardiac arrest in the affected individual. The aim of the current study was to determine the death of a still born child suffering from pericarditis. Formalin preserved heart tissue was obtained from a fetus that died in utero during the thirty third week of pregnancy. Initial autopsy results indicated death due to sudden cardiac arrest and acute fetal pericarditis, evidenced by lymphatic cell infiltration surrounding the pericardium. The objective of the study was to identify the causative agent and better characterize immune cells comprising the inflammatory response. Immunofluorescence microscopy was utilized to visualize immune cell infiltration into the parenchyma of the heart tissue. High numbers of CD4+ and CD8+ T cells were identified within the pericardium. Furthermore, Iba1+ macrophages were found within the myocardium near regions of pericardial inflammation. RNA isolated for heart tissue was reverse-transcribed into cDNA and used as a template for PCR. Enterovirus and parechovirus consensus primers were utilized for PCR amplification, and the results were compared with cDNA generated from heart tissue of a coxsackievirus-infected mouse. Multiple amplifications with these primers failed to amplify either enterovirus or parechovirus-specific sequences. However, the amplification potential of the RNA (and hence our detection limits for virus amplification) was found to be reduced, as determined by beta-actin control primer amplification, most likely due the treatment of the tissue during the original isolation and formalin fixation. Efforts are being made to improve the quality of isolated RNA utilizing molecular biology techniques specifically designed for formalin-treated tissues.
#350 11:00 am

**Genome-Wide Screen for Fat Regulatory Genes in Drosophila melanogaster**

Ernesto Enrique, Biology
Greg Harris, Biology

Obesity is a disease known to adversely affect ones health through the accumulation of body fat. The disorder is a significant risk factor for type II diabetes, cardiovascular disease, hypertension and forms of cancer. Genetic research utilizing model organisms such as *Caenorhabditis elegans* and *Drosophila melanogaster* provide valuable insight into energy metabolism. Availability of complete genome databases in these organisms allows researchers to employ comparative genomics and bioinformatics analyses to assist in the identification of highly conserved fat regulatory genes. In an investigation utilizing RNAi, researchers systematically screened the C. elegans genome for 417 fat regulatory genes. This comparative genomic approach will lend insight into identifying the most highly conserved fat regulatory genes in sequence and function.

#351 11:15 am

**The Analysis of Ethanol Sensitivity, Tolerance, and Metabolism in Drosophila Sphingolipid Mutants**

Alexis Zukowski, Biology
Greg Harris, Biology

Membrane-associated sphingolipids are found ubiquitously in eukaryotic cells and play important roles and functions in numerous cellular processes that are vital to the overall development of an organism. When an organism is exposed to alcohol, ethanol has been found to influence the lipid arrangement of the membrane; however it is not known how molecular biological activities contribute to these changes. We are utilizing *Drosophila* to investigate whether changes in the sphingolipid metabolic pathway alters the organisms ethanol sensitivity, tolerance, and/or metabolism. The use of an inebriometer was employed as an assay to measure and quantify sensitivity and tolerance to ethanol. We report that six mutant fly lines with mutations affecting key enzymes that regard the sphingolipid pathway have shown increased sensitivity and decreased tolerance upon acute exposure to ethanol as compared to wild-type flies. Future studies will be directed to understand the mechanisms that underlie the interrelationships between sphingolipid and ethanol metabolism.

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Session D-11

**Oral Presentation:**

**Cultural Influences and Public Health**

Saturday, February 28, 10:15 am – 12:00 pm
Location: Casa Real

#352 10:15 am

**The Evolution of the Culture of the Organic Food**

Danielle Ingoglia, Public Administration
Kimberly Collins, Public Administration

Today, most supermarkets feature a wide choice of organic foods, ranging from fresh to processed, all stamped with a recognizable seal from the United States Department of Agriculture (USDA). While this seal lends validity, in the consumers minds, to such products as meeting organic standards, the average consumer likely gives little thought as to how those standards were developed, and by whom. Given the growth and visibility of organic food products over the past three decades, particularly since 2000, it might appear that major agribusiness and producers of conventional foods embraced the organic food industry, although such was not the case. The USDAs regulation of organic food, including the development of its seal of approval, resulted from contentious policy making that pitted the passionate champions at organic cultures roots against the opportunistic major players in the food industry. While the latter has had the advantage in defining what organic is, interest groups continuously temper such advantage through advocacy. This presentation will discuss the evolution of the organic food industry, its current state and ongoing issues.

#353 10:30 am

**Preventative Health Habits Among Korean-American Women in California**

David Fink, Public Health
Richard Hofstetter, Political Science

Background: Early detection and treatment are the most efficacious means to reduce morbidity and mortality due to breast and cervical cancer. Previous studies have found a racial disparity in cancer screening between Korean-American and White women. The purpose of this study was to determine the specific demographic characteristics among Korean-American women in California that led to a higher likelihood of obtaining Mammograms and Pap smears. Methods: Adult (18 years of age or older) women of Korean descent who could be reached by residential telephone number in California were randomly selected and telephone-interviewed by closely supervised bilingual (Korean-English) interviewers who were specially trained...
for this task. Results: Among Korean-American women 40 years and older about 44.1% reported a mammogram in the past year. The strongest indicator of having a mammogram in the past year was if the female had seen a doctor in the past year. Additionally, having a household income of $50,000 or more was related to having a mammogram in the past year. Approximately 44.5% of the sample, aged 18 and older, had a Pap smear in the past year with the strongest indicator again being if the participant had seen a doctor in the past two years. Other variables related to having a Pap smear in the past year included age and Speaking Korean in the home. Conclusion: Our findings suggest higher rates of female preventative cancer screening among Korean-American women in California than previous studies have suggested. Regardless of the higher testing rates than previously found the screening rates for Korean-American women still are far lower than non-Hispanic Whites and the goals for Health People 2010. It is suggested that additional health promotion activities be focused on the Korean-American population.

#354 10:45 am

**Effectiveness of a Non-culturally Tailored Prevention Intervention to Reduce Transmission of STIs, HIV and Unintended Pregnancy for Latinos Compared to African American and White Participants**

Estela Blanco, Public Health
Suzanne Lindsay, Public Health

Statement of the Problem: High rates of sexually-transmitted infections (STIs), including human immunodeficiency virus (HIV) infection and unintended pregnancies among youth in United States (US) are a major public health concern. Young people of color may experience lower beginning social status, social and human capital than non-Latino White youth and may therefore respond differently to an intervention to reduce HIV, STIs and unintended pregnancies. Evaluation is needed to determine if non-culturally tailored prevention programs are equally effective for youth of color. Methods: The current study is part of a prospective observational pre-post study using data gathered from a comprehensive HIV, STI, unintended pregnancy prevention intervention (PEEP). There are three outcomes of interest: 1. Pre/post change in intention to use condoms; 2. Pre/post change in self-efficacy to refuse unsafe sex; 3. Pre/post increase in knowledge of STIs, HIV and prevention of unintended pregnancy. Race/ethnicity was the key variable of interest. Bivariate associations were conducted, variables with a p < .10 were included in multivariate models. Linear regression models were calculated for the three outcomes of interest. Analysis was conducted on the 282 participants with a completed pre- and post-test. Results: Participants were 37% Latino, 21% non-Latino White, and 17% African-American and had a mean age of 16 years. Most participants were male (57%) and had been in foster care (68%). Nearly 38% had been homeless and 13% were parents. Adjusting for gender, history of homelessness, being a parent, and baseline knowledge score, the mean change in correct responses on the knowledge section for Whites, Latinos and Blacks do not differ significantly (p > .05). Adjusting for sexual experience and baseline response, the mean change in self-efficacy to use condoms does not differ by racial/ethnic group (p > .05). Mean change in intention to use condoms does not differ by racial/ethnic group (p > .05), after adjusting for gender, sexual experience and baseline response. Conclusion: The effectiveness of the PEEP program does not differ by racial/ethnic group for the three outcome variables: intention to use condoms during every sexual encounter, self-efficacy to refuse unsafe sex and an increase in knowledge of STIs, HIV, and prevention of unintended pregnancy. While culturally-tailored prevention interventions are encouraged by the research literature, they may not be practical for many community-based organizations. PEEP has potential to be used by other organizations that serve an ethnically diverse population.

#355 11:00 am

**The Geodemographic Classification of Slums: Health and Demographic Patterns in Accra, Ghana**

Marta Jankowska, Geography
John Weeks, Geography

Geodemographics utilizes the strong link between where a person lives and the lifestyle choices that person makes for various economic, social, and political applications. As of yet, the development and use of geodemographics has been primarily limited within the Global North. The lack of marketing drive along with difficulty in obtaining data has prevented geodemographic analysis in less developed countries, and specifically, developing cities. Yet the utility of a geodemographic profile of a developing city cannot be understated as the populations of third world urban areas are predicted to grow from 3.3 billion in 2007 to 6.4 billion people in 2050. The intense expansion of third world urban centers is happening without concurrent infrastructure or resource development to support growing populations. As a result, the progressive status of cities as places of lower fertility, accessibility, and better health is being eroded away in developing nations. Instead, the context emerging is one of slums, overcrowding, and poor infrastructure, all resulting in increasing health inequality. With the rapid growth of slum areas, it is difficult to maintain the assumption that slums are homogeneous spaces composed of...
urban poor. We propose instead that slums are a continuum, both structurally and demographically, spanning a range from poverty to wealth. Furthermore, this continuum will be reflected in health patterns throughout a city. Utilizing Accra, Ghana as an example city, this research presents an approach for developing a geodemographic classification scheme for Accra, with a focus on slum areas, and mapping areas of high and low risk for poor health outcomes based on this classification. Data from the 2000 Ghana Census of Population and Housing, as well as the 2003 Womens Health Survey in Accra, this project will utilize statistical analysis, regression, and cluster analysis to map health patterns over the geodemographics of Accra, Ghana.

#356 11:15 am

The Association Between Environmental Perceptions on Park Use Among Latinas.

Tracy Hoos, Public Health
Elva Arredondo, Public Health

Introduction: Emerging research shows an association between the built environment and physical activity. The availability of public parks is likely to influence physical activity at a population level. Research examining the impact of the built environment on activity has primarily focused on the association between park environmental features and physical activity. There has been little research examining individual perceptions of park features and park use. Purpose: The aim of this cross-sectional study is to examine the relation between awareness of park features and intentions of park use among Latino women, a group particularly at risk for obesity. Methods: Surveys were administered to Latino women (n=78) involved in a faith based intervention promoting physical activity and built environmental changes in Chula Vista, a predominately Hispanic/Latino community in San Diego County. The surveys assessed perceptions of recent environmental changes to a local community park, intentions to use the park for physical activity, and the influence of demographic variables on these perceptions. Results: The total number of environmental changes noticed to the park was associated with intention to use the park, (OR=1.31; CI: 1.36-1.51, p<.001), frequency of park use (OR1.15; CI: 1.01; 1.31, p<.036) and using the park for exercise (OR1.29; 1.12; 1.48, p<.001). Noticing changes to safety features of the park (additional lighting, removal of separating fencing, reduced graffiti, and less homeless) was associated with increased intention to use the park (OR=2.03, CI: 1.43; 2.89, p<.001), frequency of park use (OR=1.46, CI: 1.05; 2.02, p=.023), and using the park for exercise (OR=1.975; CI: 1.4; 2.78, p<.001). Noticing changes to recreational features (e.g., improvements to walking path, new grass area) was associated with increased intention to use the park (OR=2.437; CI:1.32;4.49 p=.004) and use the park for physical activity (OR=1.823; CI:1.19; 2.77, p=.005). Monthly income level moderated the relationships between noticing changes to the park and intention to use the park (OR=1.38; CI: 1; 1.87, p=.04). Length of residence moderated the relationship between noticing changes to the park and frequency of park use (p=.005; OR1.17; CI 1.05; 1.31). Having children moderated the association between noticing environmental changes, intention to use the park (OR=1.13; CI:1.12;1.51 p=.001), park use frequency (OR=1.18;CI:1.04;1.33, p=.009) and using the park for exercise (OR=1.27;CI:1.1;1.46, p=.001). Conclusions: Findings suggest that environmental improvements to parks may increase physical activity. Moreover, results indicate that awareness of environmental changes is associated with intention to use parks for physical activity and that specific demographic characteristics, having children, income level, and length of residence, are significant moderators of the relationship between environmental perceptions and intention of park use. Further research examining these associations will be important for future interventions targeting physical activity at an environmental level.

#357 11:30 am

Creating a Collaborative Framework to Understand and Reduce Health Disparities in San Diego County’s Asian/Pacific Islander (API) Communities

Linda Xiong, Public Health
Suzanne Lindsay, Public Health

Objective: To create a centralized database of API resources that provides an overall picture of API healthcare needs in San Diego County. To identify research questions and develop an agenda on health issues that focus on the API community; organize a network from academia and the community to collaborate in addressing API grassroots health concerns. Hypothesis: Health disparities among the API community are associated with 1) limited culturally tailored health services; 2) absence of a centralized database of API literature related to health; and 3) limited participation due to lack of familiarity with formal research. Methods: We are conducting a systematic review of all documented API research in San Diego County. We have created an Access database to store articles and resources. We will analyze the articles to identify gaps, trends, and best practices. The resource guide database will include all API resources and services in San Diego County. Our resource guide will provide information about
social and health-related services available to the API community. The database will be Internet-accessible for all community members. SPSS (Statistical Package for the Social Sciences) will be used to analyze data. After an extensive literature review, research questions currently addressed include: 1) What would improve the health of people living in this community? 2) What could health providers do to improve the health of people living in this community? We will take our preliminary findings and share them with the community to confirm if they accurately reflect community health needs at a community forum in May. Results: We are in the early phases of the Asian Pacific Islander Community Health Network (API-CHN) project. The development of the article and resource guide Access database is completed. To date, 350 articles have been found. The distribution list for the resource guide directory will be disseminated by email soon. An interactive web site for the API-CHN will be developed and our findings will be shared with the community. Conclusion: We hope to use our findings to develop culturally competent materials, appropriate interventions, and advocacy resources to improve the health status of API communities.

Session D-12
Oral Presentation: The Wide World of Business II
Saturday, February 28, 10:15 am – 12:00 pm
Location: Chantico

#358 10:15 am
Port of Entry Design, Location, and Management, and Corresponding Effects on Border Wait Times
Joseph Lea, Business Administration
Kimberly Collins, Business Administration

Increasing integration among US / Mexico border cities continues to present new challenges to the border regions. Thousands of vehicles cross the border from Mexico into the US each day, with crossing numbers continuing to increase at many points of entry. These and other factors have resulted in increased wait times at many border crossings. Much has been written about the costs associated with long border waits, including lost revenues, work hours, and jobs, as well as negative effects on the environment. This research uses a detailed analysis of crossing data to examine the effect of layout, flow, signaling, processes, and management on wait times. The key role that location plays in the effectiveness of added crossing capacity is discussed, along with recommendations for improvement and further study.

#359 10:30 am
Withdrawn

#360 10:45 am
Sidekix
David Krisch, Business Administration
Bernie Schroeder, EMC

Sidekix is a company created by four part-time MBA students. Sidekix is currently a “women’s shoe and handbag accessory” business that tries to give women an alternative for when their feet hurt after a day in high heels. Specifically, we created a shoe and handbag to solve this common problem. We have been selected by the SDSU Entrepreneurial Management Center to present our business plan at the New Venture Championship put on by the University of Oregon in April. To be selected for the competition, we have given two fifteen minute pitches in front of members of the EMC and SDSU classmates. The result of the effort put forth in preparation for the competition will be a company with a product in the market.

#361 11:00 am
La Paloma Fiscal Impact Report Analysis
Glen Allegranza, Public Administration
Richard Parker, Public Administration

Our project consisted of analyzing the La Paloma Specific Plan and Annexation to the City of Brawley Fiscal Impact Report (La Paloma). Fiscal impact reports estimate a developments impact on government revenues and expenditures. The purpose of analyzing the La Paloma fiscal impact report was to ascertain the completeness and accuracy of the original report. Analysis of the La Paloma fiscal impact report included the following steps: 1) Identifying the reports methodologies; 2) determining the accuracy of all revenue and expenditure estimates using the reports methodology; 3) identifying all possible corrections and adjustments and possible flaws in the methodology or its application; 4) identifying any additional sources of revenues or omitted expenditures; and 5) considering additional factors not normally found in fiscal impact reports that are more typically considered in a cost-benefit analysis (which include costs and benefits beyond those that directly affect government revenues and expenditures).
Several problems were identified in the report: 1) a $40,200 miscalculation in the estimate of the County’s sales tax revenues; 2) a potentially significant problem where the report seemed to overestimate post-annexation County police expenditures; and 3) an insignificant exclusion of the transfer effect of sales tax revenues. Our analysis found that extra-fiscal impact report factors such as opportunity costs and environmental impacts...
were normal for this type of development and that aesthetic and socioeconomic impacts ought to improve the community. However, we believed the developments traffic impacts on the wider community should have been studied for a more complete picture of the developments impact in this regard. Our opinion is that the fiscal impact report, with the two noted exceptions, did a thorough job of estimating all pertinent fiscal impacts that could have been reasonably projected for the La Paloma development. Furthermore, the approach and methodologies used in the report seemed appropriate and inclusive, with the exceptions of the one miscalculation discussed above, plus the potentially significant over-estimation of the County’s Sheriff-Coroner expenditures, and the transfer effect of sales tax revenues (the latter being of marginal consequence to the reports overall conclusion).

Session D-13
Oral Presentation: Community Perspectives
Saturday, February 28, 10:15 am – 12:00 pm
Location: Council Chambers

#362 10:15 am
How Archaeologist Integrate with Local Communities, Customs, and Beliefs in Oaxaca, Mexico.
Marcos Ramos Ponciano, Anthropology
Ramona Perez, Anthropology

The Instituto Nacional de Historia e Antropología (National Institute of History and Anthropology) was created to preserve the patrimony of Mexico’s rich prehistory, with a special emphasis on monumental archaeology. In many cases, the excavation of these sites was done with little regard for the impact this would have on the communities whose lands were confiscated in the process, as once declared national patrimony the title to these lands was converted to the state. In addition to lost land by local communities, archaeologists and the larger scholarly community lost as well when data on how these local communities had been negotiating ancient cultural frameworks and use patterns was not captured. Over the last twenty five years, communities within Oaxaca have worked with the INAH to create museos comunitarios (community museums) that incorporate their prehistory, history and local lives with these ancient sites. This allowed for both entities to benefit from the excavation of ruins that were located on community lands. This research explores this phenomenon and analyzes its intended and unintended benefits and implications as well as possibility for implementation in other locations where archaeologists, local communities, and governmental institutions have not found collaborative ground.

#363 10:30 am
Emodish M. Abebe, Psychology
Jean Twenge, Psychology

More recent generations score higher in individualistic traits on several measures, but as self-report data these questionnaires have limitations. This study uses a behavioral measure, names given children to track changes in the importance of uniqueness over time. Data were obtained from the Social Security Administrations database, which is a 100% sample of the names of Americans with a social security card (n = 325 million). The percentage of popular names decreased sharply with time between 1880 and 2007. The correlation with year is large, between $r = -0.65$ and $r = -0.95$ depending on the measure. The pattern is not entirely linear: There was a slight rise in the use of popular names between the 1920-1950s with a steep drop after the 1970s and 1980s. The change is not explained by immigration; year is still a significant predictor.

#364 10:45 am
Adoption of the Thin-ideal and Body Image in Latinas
Javier Galvez, Psychology
Elizabeth Cordero, Psychology

Media play a huge role in body image. The media, such as movies, television, and fashion magazines, portray images of a female “thin ideal” that can lead women who compare themselves to them to experience body dissatisfaction. College women who are shown pictures of ultra-thin fashion models immediately report experiencing body dissatisfaction, particularly those who believed that thinness equates beauty (Posavac, Posavac, & Posavac, 1998). Many studies have been conducted on body image; however, the majority of these studies are performed using European-American women as samples, leaving minorities like Latina women behind. There is little research about Latina college women and their body image, including about how media
influences Latinas on what the ideal body should look like. Could it be possible that media images with the ideal thin figure affect Latina women equally? The purpose of our study is to examine how the adoption of the mainstream-American thin ideal predicts the experience of body dissatisfaction in Latina college women after exposure to a fashion show with very thin female models. This study will analyze a subset of data from a project examining fat talk and body image in Latina college women. Data collection is in progress; data will be collected from 150 participants by February 2009. The Sociocultural Attitudes Toward Appearance Questionnaire, Third Edition (SATAQ-3; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004) is administered before the experimental manipulation (fashion show) and assesses participants adoption of mainstream-US attitudes about beauty. The Body Image States Scale (BISS) is administered after the experimental manipulation and measures participants perspectives on their appearance (Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002). Data will be entered into a linear regression, with scores on the SATAQ-3 entered as a predictor variable and scores on the BISS entered as the outcome variable. Our teams primary objective is educating women on the influences which impact body image. Ultimately, this study hopes to help women not think of themselves as fat simply because the media have influenced them with images on television and magazines. We think by addressing these issues, we will be promoting healthy lifestyles.

**#365 11:00 am**

**The Chilling Effect of Fear of Reprisal on Union Interest**

Lacey Wilson, Psychology  
Lisa Kath, Psychology

Financial strain and self-enhancement have been shown to accurately predict union interest. The moderating effect of fear of reprisal for disclosing union interest was tested using hierarchical regression analyses. Results indicated that fear of reprisal reversed the positive relationship between financial strain and union interest, and minimized the negative relationship between self enhancement and union interest.

**#366 11:15 am**

**Student Organization Leadership Residence (SOLR)**

Patrick Hale, Public Administration

The Student Organization Leadership Residence (SOLR) is dedicated to the education and professional leadership development of universities diverse student bodies. SOLR fosters and supports student opportunities for education, leadership, community building, and creative expression, which complement classroom experiences. SOLR supports student organizations and their leaders and they in turn provide programs and resources to their student body and the wider university community. The proposed Student Organization Leadership Residence (SOLR) brings hands on practical experience to students at San Diego State University (SDSU). The SOLR Project sets out a plan to renovate an existing structure in close proximity to SDSU. The planned renovations include sustainable upgrades in efforts to create a “Green” or potentially LEED certified property. The SOLR project is designed to be a culmination of all student organizations for the purpose of “building leaders and enhancing innovation. Project Goal: The SOLR residence includes and is not limited to serving primary functions for students as listed: Additional student housing units for lease. Additional meeting space provided for SDSU recognized student organizations; Model for active students lifestyles (on-campus and in the community); Model operational and financial sustainability features for residences; Outlet for students efforts towards improving university and community aesthetics. The theme and design of our proposal is consistent with the plan of making the Plaza Linda Verde redevelopment environmentally friendly. This property redevelopment will advance by a series of donations to our non-profit student organizations from local suppliers of required materials. The costs of renovations through donations will in turn be very minimal; while the enhancements to the property and SDSU’s rapport will be immense. The property will feature common areas which will be instrumental for student organization meeting requirements and for a variety of other activities to include: student networking, study group work, and collaboration upon special interest topics. The SOLR project you will find brings a variety of benefits to the University, Students, Faculty, Staff, and our Community while providing a model for universities throughout the nation; with SDSU as the founder of the first SOLR house, which passes or exceeds LEED certifications! The bedrooms in the residence will be leased to students using a tiered system. Student organizations executives will have the first right-of-refusal to lease the bedrooms in efforts to create synergy between a diverse group of ambitious young leaders seeking positive personal and professional growth.
Session D-14
Oral Presentation: Electrical Engineering
Saturday, February 28, 10:15 am – 12:00 pm
Location: Presidential Suite

#367 10:15 am
**Spark Plasma Sintering**
Marcus Schaffer, Electrical Engineering
Eugene Olevsky, Mechanical Engineering

Spark-plasma sintering (SPS) is an emerging powder consolidating technique which provides significant advantages to the processing of materials into configurations previously unattainable. SPS consists essentially of the conjoint application of high temperature, high axial pressure and field (plasma) assisted sintering. Sintering technologies are traditionally used for manufacturing ceramic objects and have found uses in the field of powder metallurgy. The SPS temperature, the applied pressure and the SPS time are the controlling input experiment parameters. In the present research, the accuracy of the temperature measurement through the usage of thermocouples and thermo-optical devices has been verified. The feasibility of SPS usage for the fabrication of carbon-nanotube-metal composites for the thermal management applications has been analyzed.

#368 10:30 am
**Novel Volumetric Metamaterial Structures for Microwave Device and Antenna Applications**
Nathan Labadie, Electrical Engineering
Satish Sharma, Electrical and Computer Engineering

Our research is centered on developing electrically small and isotropic embedded circuit structures for use as a metamaterial. Metamaterials are typically defined as a class of artificial composite materials with unusual electromagnetic properties including negative refractive index, inverted Doppler Effect, inverted Cherenkov radiation, and anomalous dispersion. The hallmark characteristic of such materials is a negative permittivity, negative permeability, or both. At microwave frequencies, the unit cell size is typically on the order of 10mm, which is too large for many mobile communications applications. Furthermore, many structures exhibit unwanted anisotropy due to lack of appropriate symmetry. We propose at least one novel structure capable of both isotropic and electrically large behavior. Our proposed structure consists of a single conductor meandered so as to behave like a planar split ring resonator and wire medium at each face of a cubic unit cell. Using Ansofts HFSS eigenmode solver to plot the dispersion curve, we have verified the existence of backward radiating and non-radiating modes. A full mapping of the Brillouin zone shows that the backward mode exists in all directions although the magnitude of the group velocity is angle dependent. Further tuning of the structure and lattice arrangement is required to achieve full isotropy. A local field averaging method is used to extract the effective permittivity and permeability of the homogeneous equivalent of our metamaterial, verifying the existence of a fast-wave backward mode near 3.8 GHz. Several applications are being devised to establish the practical usage of our novel volumetric metamaterial. We intend to test the ability of a finite slab to function as a miniaturizing substrate and a directive superstrate for at least one antenna type. The presence of the slow wave backward mode will also be tested in a phase shifter application.

#369 10:45 am
**Investigations on the Design of a Wideband Microstrip Bandpass Filter with the Help of Defected Ground Structures (DGS)**
Pankaj Dagar, Electrical Engineering
Satish Sharma, Electrical Engineering

In this research, we have studied and designed 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 version 3.0. The bandwidth of the original microstrip filter is the 47.7%(3.24Ghz to 5.27 Ghz) with a passband ripple is 0.218 dB and the return loss here is studied with respect to -10db. Here we have studied the horizontal and vertical defected ground structures 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 is 63%(2.75Ghz to 5.27Ghz) and with applying a horizontal DGS the maximum bandwidth attained is 57.2%(3.0Ghz to 5.4 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 a frequency range of 2Ghz to 6Ghz and a bandwidth of 100% which has many uses in the communication.
#370 11:00 am

**Investigations on Cylindrical Shape Dielectric Resonator Antenna (DRA) with Wide Impedance Bandwidth and Low Cross Polarization Gain using Anti-Probe Arrangements**

Abhishek Singh, Electrical Engineering
Satish Sharma, Electrical Engineering

In this research, wideband cylindrical shape DRAs excited using a single and dual coaxial probes (anti-probe arrangement) are discussed. It has been shown that by using dual coaxial probes in anti-probe arrangements, a low cross-polarization directional radiation pattern antenna can be obtained. Full wave analysis simulations were carried out using Ansoft Corporation’s High Frequency Structure Simulator (HFSS) version 10. The impedance bandwidth (w.r.t. $S_{11} = -10$ dB) for the DRA with single probe is around 82% (4.65 GHz to 11.10 GHz). In comparison to this, the dual probe fed DRA shows a reduced bandwidth of around 68% (5.2 GHz to 10.4 GHz) but with enhanced radiation characteristics such as the higher gain and low cross-polarization. From the single probe fed antenna, at the start of the bandwidth, the co-polarization gain of the antenna is below 0 dBi. The gain continues to be below 0 dBi up to 9 GHz after which the gain raises up to 5 dBi and remains around 5 dBi till the end of the frequency band. It should be noted that below 9 GHz, the antenna shows omnidirectional to near directional patterns. In comparison to this, dual anti-probe DRA shows much higher gain performance throughout the frequency band while radiation pattern is directional with very low cross-polarization. Finite ground plane has been used in the investigation which provides a compact DRA design. Finally, it can be concluded that, the research presents the investigation results on the cylindrical DRA excited using single probe and anti-probe feeds, both on a finite ground plane. For the single probe case, an impedance bandwidth of 82% is achieved with the monopole like radiation patterns in the beginning of the bandwidth and the directional radiation patterns later on. There is reduction in the bandwidth to 68% for the anti-probe DRA case, however there is significant improvement in terms of the radiation pattern gain and low cross polarization, right from the start to the end of the frequency band. Antenna will be fabricated and experimentally tested in the Antenna and Microwave Laboratory (AML).

#371 11:15 am

**QoS Supportive MAC Protocol for WLANS**

Rohitha Vakamudi, Electrical Engineering
Mahasweta Sarkar, Electrical and Computer engineering

In spite of the tremendous boom in the wireless LAN arena, applications such as streaming video and audio still bring unique and challenging quality of service (QoS) requirements to such networks. To this effect, IEEE 802.11e medium access control (MAC) standard specifies a set of QoS enhancement features which allows traffic classification (High Priority or HP and Low Priority or LP), prioritization and support for various classes of service (preferential and non-preferential service) for various traffic types over a wireless LAN. Thus HP traffic enjoys privileged service hence encounters lesser delay than an application which declares its traffic to be of type LP. However, it is possible for an application to falsely classify its LP traffic as HP traffic in pursuit of preferential service. Such selfish behavior by applications may destroy the QoS capabilities of the network. Currently, the standard does not address this issue. To provide relevant incentives to applications to behave truthfully, a new MAC protocol has been designed which promises fair sharing of resources amongst both HP and LP traffic such that the “utility” of both traffic classes is maximized. This paper presents an evaluation of this new MAC protocol through simulations and analysis results. Specifically, this paper analyses the incentive mechanism proposed in this MAC and studies its effect on system performance. It also compares this MAC scheme to a scheme similar to that suggested in IEEE 802.11e. Finally, a QualNet simulation is provided which demonstrates the feasibility of incorporating our scheme in the current IEEE 802.11e standard and the efficiency of our scheme over the same in the presence of selfish users.

#372 11:30 am

**An Investigation on the Wideband Radiation Behavior of a Sierpinski Microstrip Fractal Antenna using a Novel Feed Network**

Justin Church, Electrical Engineering
Satish K. Sharma, Electrical Engineering

Research Aim: Many of modern day wireless communication devices often incorporate several wireless protocols such as BlueTooth, Zigbee, WiMax, as well as cellular and GPS, each with their inherent broadcast frequencies. This has lead many antenna engineers to push for antenna designs that are capable of radiating efficiently over a wide range of frequencies. This research in
wideband antenna design has given rise to many antenna geometries this past decade. One of the more unique geometries is the Sierpinski gasket fractal geometry, as shown in Fig. 1, which has been originally explored for the multiband applications. Only few authors up to this point have explored this geometry for wideband radiation performance. It is our aim to show that this geometry is capable of wideband performance through the incorporation of a novel feeding mechanism. Research Methods: Using industry standard electromagnetic simulation software available in our Antenna and Microwave lab (AML) at SDSU, the studies have shown promising wideband performance in the frequency range from 9-18GHz. Further simulation studies are ongoing, and a final experimental verification is planned using our newly acquired anechoic chamber for the antenna testing. Simulation Results: Thus far our simulation studies have shown that our proposed design has highly directive radiation patterns in the 9-18GHz frequency range, thus giving rise to a radiation bandwidth near 70%, making it well suited for the wideband applications. It is our claim that this performance can be attributed to the novel feeding mechanism used, since a better control of the surface currents is maintained with this feed network. Conclusion: In this presentation, we will demonstrate that the antenna design gives rise to unique radiation performance characteristics over the 70% bandwidth making it well suited for many applications in wireless communication.
allowed them subsist in this rugged region. For many years, the remote location of these communities, some solely accessible on foot or by pack animals, has limited access to services. In recent decades the world-renowned cave paintings of this area have begun to attract both national and international tourists. Local and foreign organizations have taken interest in building an infrastructure to both sustain visitors and benefit the community. As roads have improved to meet tourism needs, and outside food products have become more accessible, changes in diet and cooking practices have been observed. Exploratory research and preliminary needs assessment have provided evidence of social and dietary changes in multiple subsets of the population. Dietary changes seem to be more pronounced for those ranches along the primary roadways or in proximity to the trail to the cave paintings. These pathways of the tourist industry carry individuals with international dietary predilections and social practices that highly differ from those of the local residents of the region. Many children learn to expect gifts of food and candy from the visitors. Guides pick up new diets and practices associated with hiking and camping, as it is expected that the guides be fed by the members of the tour groups. Often women of the community, traditionally being homemakers and house cooks, are employed by visiting groups for preparing food. These foreign recipes often find their way back into the homes of the local ranchers. It is yet unclear what the effects of these new influences will be. However, it is evident that any future research regarding the issues of health in this region must take these emerging trends into consideration.

#375 10:45 am
**Patronymy and the Trope of Choice**
Melissann Herron, Women’s Studies
Esther Rothblum, Women’s Studies

Current research on marital naming practices, while sparse, indicates that only 10 to 20 percent of women make nontraditional choices (keeping, hyphenating, or merging birth names). Experts argue that more women chose to keep their name in the past, following second wave feminism’s focus on the importance of women’s autonomous identity, than do contemporary women, an alarming and somewhat shocking trend. Experts on marital naming practices are few and extend across many academic fields, including psychology, economics, and communications, but despite indications that race, education, and class affect choice, samples remain largely homogenous. I present a basic review of current research, looking specifically at the importance of a diverse sample and the difficulty of finding a neutral lens when the very language to describe such research is gendered and patriarchal.

My research utilizes existing data on women’s surname choices to problematize the notion of choice in a society where women alone are expected to sacrifice part of their identity. Reexamining and expanding on feminist Adrienne Rich’s research on the institution of motherhood, it becomes clear that girls are socialized from birth to make such sacrifices, to subsume parts of their identity under roles such as wife and mother, whereas men always know their names are theirs to keep. While most women feel loss in keeping their name, argue that taking their husbands name is a method of connecting the family, and frequently believe that they make such decisions through free will, the very notion of a man taking his wife’s name remains, largely, laughable and emasculating, not to mention legally difficult. In complicating choice through a feminist lens, the author finds that the current system leaves women few options for keeping their name, but that patriarchy obscures this lack of choice under the trope of free will. I conclude in discussing the need to further complicate the notion of choice, in particular looking at women of color, and to more deeply delve into the ways in which linguistic practice obscures patriarchy through patronymy.

#376 11:00 am
**Optimization of Multiple Objectives for Emergency Wildfire Evacuation Decisions**
Grant Fraley, Geography
Piotr Jankowski, Geography

In California, recent years have exhibited the potential of wildfires to cause both extensive damage to property and loss of human life. Many people prefer to live in the urban fringe or adjacent to canyons within California cities where the landscape is picturesque, yet often wildfire-prone. Evacuating populations threatened by a wildfire is a complex and time-sensitive task for decision-makers. When an evacuation order is given facilities must be allocated to provide an opportunity for safe shelter, and evacuation routes must be recommended for efficient relocation.

Establishing evacuation shelters and routes in response to wildfire activity involves multiple objectives, considerations, and constraints. Further, emergency management decision-makers often desire alternative plans for action. Thus, the evacuation shelter and routing decision problem is intractable for exact computation methods. Yet, the considerable risks involved necessitate a well-informed decision analysis. Multi-objective genetic algorithms (MOGA) are a class of evolutionary computation methods that are often applied to complex optimization problems. A MOGA may quickly generate a wide range of approximate solutions representing trade-offs between multiple decision objectives. This research develops a mathematical optimization model for wildfire evacuation decision objectives and constraints. It is hypothesized that a MOGA will generate a diverse set of near-optimal solutions to the wildfire evacuation model. Spatial data has been collected...
on the extent of the October 2007 Southern California wildfires and associated evacuation orders. A MOGA was integrated with a Geographic Information System (GIS) to calculate model objectives from the spatial data, and to visualize maps of generated solutions. To assess the performance of the MOGA system, decision option maps and a statistical measure of solution diversity were employed. Results from the initial system implementation indicate that the MOGA is capable of generating significantly diverse decision alternatives, and further development of this research could produce a valuable tool for emergency management.

#377 11:15 am

*Exploring Attribute Spaces to Understand the Experience of Place*

Ryan Burns, Geography
André Skupin, Geography

Attribute spaces' are composed of the high-dimensional qualities that are associated with objects or phenomena. The attribute space of a place may be composed of its Census data, the general ‘feel’ of the place, or its physical climate, for instance. One’s experience of a place engages many such attribute spaces, including the attribute space of the person’s personal characteristics and past, the place’s attribute space, and the attribute space of that person’s impression of the place. This study seeks to make sense of the complex interactions of these attribute spaces by visualizing them using a computational dimensionality reduction technique called the Self-organizing Map (SOM). A SOM is, conceptualized simply, a low-dimensional representation of a high-dimensional attribute space. Participants in our study watched georeferenced videos of San Diego neighborhoods and simultaneously recorded their impressions of the neighborhoods both by choosing from a list of pre-selected words and by freely typing their impressions. The SOM algorithm used this data, Census data, and the respondents’ personal characteristics to create many SOMs from which we can explore the relationships between the multiple attribute spaces. In one SOM, for instance, neighborhoods are organized according to how people described them rather than their geographic organization. In another people are organized in two dimensions by their personal characteristics. This novel way of exploring the experience of place allows new questions to be asked of the data. We investigate the influence of subjects personal attributes on their impressions of places by viewing maps of people organized by their utterances. We contrast connections between places when they are organized according to their Census data and when they are organized according to people’s descriptions of them. We create many more SOMs exploring dominant patterns in the data; arrangement of people, places, and utterances; and other relations across attribute spaces.
Our thanks and appreciation to the following individuals, units and groups for their support of student involvement in research, scholarship and creative activities.

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Acknowledgements

Miriam Bennett
Sanford Bernstein
Annalisa Berta
Richard Bizzoco
Peter Blomgren
Edward Blum
Henriko Blumenfeld
Marcie Bober-Michel
Richard Boyd
Susan Brasser
Marilee Bresciani
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