

# THE 8<sup>TH</sup> ANNUAL JAMES F. JAKOBSEN GRADUATE CONFERENCE

*Presented by the Graduate Student Senate*



The Graduate Student Conference was named for Dean Jakobsen in 2001 in honor of his long-standing commitment to graduate student education and his work with the Graduate Student Senate. He served as the liaison to GSS for many years, attending our meetings assiduously. His advice and support have helped make our organization what it is today. In 1998, Dean Jakobsen retired as Associate Dean of the Graduate College after 30 years of service. He began his work at the University of Iowa in the Math Department after earning his Ph.D. from the University of Missouri that same year. After serving as the chair of his department, he began his career in the Graduate College in 1968. Dean Jakobsen has worked on numerous projects that have directly benefited graduate students during his tenure at Iowa. He helped establish the D.C. Spriestersbach Distinguished Dissertation Prize, the T. Anne Cleary Fellowships, the Graduate Opportunity Fellowships, and the Seashore/Ballard Dissertation Fellowship. In addition to his substantial work with minority students, he helped design the ad hoc interdisciplinary Ph.D. program. Most importantly, Dean Jakobsen is well-known for his humility, personal attention to students, and commitment to excellence. We hope that the Conference continues to live up to his outstanding reputation.

## **The 2006 Jakobsen Conference Committee**

<b>Jessica Horst</b>	Co-Chair/Submissions and Judging
<b>James Krueger</b>	Co-Chair/Event Planning
<b>Darren Hoffmann</b>	Co-Chair/Publicity
<b>Ryan Kavlie</b>	Biological and Life Sciences Division Head
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<b>Jill Wittrock</b>	Social Sciences & Education Division Head
<b>Sarah Vigmostad</b>	GSS President
<b>Margaret Burchianti</b>	Past Conference (Forum) Chair
<b>J Caldwell</b>	Webmaster

Cover Image: *Scholar with his books* • Gerbrand van den Eeckhout (1621-1674)

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## **Conference Schedule of Events – Saturday March 25, 2006**

*Blank Honors Center, 9:00am-5:00pm*

- 8:30**                    **Registration opens** (South end of Main Lobby)
- 9:00-10:30**            **Concurrent Session A** (Rms 134, 140, 214, 234, 240)
- 10:30-11:30**          **Poster Session 1** (Main Lobby)
- 11:00-11:30**          **“Excellence in Graduate Teaching”** (Rm 114)
- 11:30-12:30**          **Concurrent Session B** (Rms 134, 140, 214, 234, 240)
- 12:30-1:30**            **“The Dissertation and Beyond” and Lunch** (Rm 114)
- 1:30-2:30**             **Concurrent Session C** (Rms 134, 140, 214, 234, 240)
- 2:30-3:30**             **Poster Session 2** (Main Lobby)
- 3:00-3:30**             **“Mentoring as Graduate Students”** (Rm 114)
- 3:30-5:00**             **Concurrent Session D** (Rms 114, 134, 140, 214, 234, 240)

*Levitt Center (Green Assembly Hall), 6:30-9:00*

- 6:30-7:00**             **Sign-in, Reception**
- 7:00-8:00**             **Fine and Performing Arts Showcase**  
Jennifer Proctor, *Cinema and Comparative Literature*  
Andre Silva, *Cinema and Comparative Literature*  
Jynelle Gracia, *Nonfiction Writing Program*
- 8:00-9:00**             **Awards Ceremony**  
Outstanding Graduate Students as Mentors Awards  
James F. Jakobsen Graduate Conference Awards

## Concurrent Session Schedules

### **Concurrent Session A, 9:00-10:30**

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**9:00-10:30 am-** Humanities: 20<sup>th</sup> and 21<sup>st</sup> Century Social History (Rm 134)

Moderator:

**Shaowei Wan**, *Clinical and Administrative Pharmacy*

Presenters:

**Anna Bostwick**, *History*

Federal Festival for Female Radicals Financed with Your Money: The Impact of the IWY  
National Women's Conference on Ratification of the Equal Rights Amendment

**Dana Quartana**, *History*

"We can keep our hats on and chew all we want:" Male Camaraderie in Delinquency Prevention in  
Chicago during the 1930s

**Andria Timmer**, *Anthropology*

Teaching the "Unteachable": Educational Reform for the Hungarian Roma

**Justus Hartzok**, *History*

Laughing At War Heroes: Humor and Social Response to the Chapaev Cult in Stalinist Russia

**9:00-10:30 am-** Humanities: Literature and Language (Rm 140)

Moderator:

**Allison McGuffie**, *Film Studies*

Presenters:

**Joyce Kelley**, *English*

Nooks and Corners Which I Enjoy Exploring: Investigating the Relationship Between Vita  
Sackville-West's Passenger to Teheran and Virginia Woolf's Writing

**Danielle Eivins**, *Spanish and Portuguese*

Historical Fictionalization and Contemporary Re-Fictionalization: A multi-media work

**Sean Scanlan**, *English*

Edith Wharton's *The House of Mirth*: Homesickness and Literary Nostalgia

**Bei Yang**, *Second Language Acquisition (FLARE)*

Are Two General Classifiers Unstable in Shanghai Wu Dialect?

**9:00-10:45 am-** Social Sciences and Education: Politics of Identity, Gender and  
Religion (Rm 214)

Moderator:

**Amy Jo Marcano-Reik**, *Psychology*

Presenters:

**Zana Friganovic**, *International Studies*

Proof of Identification: the Persistence of Yugoslav National Sentiment

**Chuan-hsien Chang**, *Political Science*

Politics of Defection: Reinvestigating Influence of Electoral System over Party System

**Jill Moffett**, *Women's Studies*

Women and the War on Cancer: The Role of the Women's Field Army in Shaping Contemporary  
Breast Cancer Activism

**David Morris**, *Communication Studies*

The Rhetoric of Christian Love in the Children of God Religious Sect

**Grant McCall, Anthropology**

Investigating the Origins of Modern Humans Using Lithic Datasets from Klasies River Mouth, South Africa

**9:00-10:45 am- Math, Physical Sciences and Engineering: Applications in Biomedical Engineering (Rm 234)**

Moderators:

**Xiaoyun Pan, Pharmacy**

**Birsen Donmez, Industrial Engineering**

Presenters:

**Sarah Vigmostad, Biomedical Engineering**

A Sharp Interface Fluid-Structure Interaction Model for a Bioprosthetic Heart Valve

**Soumik Ukil, Biomedical Engineering**

Automatic segmentation of pulmonary fissures in X-ray CT images using anatomic guidance

**Krishna Kalari, Biomedical Engineering**

Computer Aided Search to Identify Mutations in a Gene

**Helen Fuller, Biomedical Engineering**

Evaluation of a rapid normalization method for use in ergonomics studies

**Deepak Bharkada, Biomedical Engineering**

Reconstruction from random fan-beam projections

**9:00-10:30 am- Math, Physical Sciences and Engineering: Chemistry (Rm 240)**

Moderator:

**Yulia Skvortsova, Chemistry**

Presenters:

**Anatoliy Sokolov, Chemistry**

Enforced Face-to-Face Stacking of Organic Semiconductor Building Blocks within Hydrogen-Bonded Molecular Co-Crystals

**Sujith Perera, Chemistry**

Synthesis of Photocatalytic Active Nanocrystalline Rutile and Anatase TiO<sub>2</sub>

**Ivan Georgiev, Chemistry**

Design and Construction of Supramolecular Complexes that Maintained their Reactivity in the Solid State

**Timothy White, Chemical and Biochemical Engineering**

The Influence of Thiol-ene Polymer Evolution on the Formation and Performance of Holographic Polymer Dispersed Liquid Crystals

**Concurrent Session B, 11:30-12:30**

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**11:30-12:30 pm- Humanities: Identity and Representation (Rm 134)**

Moderator:

**Jill Moffett, Women's Studies**

Presenters:

**Cinda Nofziger, American Studies**

Picturing the Tourist: Photographic Representations of Women in Holiday, 1946-1949

**Ulrich Adelt, American Studies**

Trying to Find an Identity: Eric Clapton's Changing Conception of "Blackness"

**Matt Thomas, American Studies**

The Contemporary Disability Film: A Semantic/Syntactic Approach

**11:30-12:30 pm- Humanities: Approaches to Cultural History (Rm 140)**

Moderator:

**Andria Timmer**, *Anthropology*

Presenters:

**Karen Smith**, *American Studies*

Cultivating Resonance: The Dissemination of the Quilts of Gee's Bend

**Justin St. Clair**, *English*

Jacques de Vaucanson, Gadgeteer (or, Notes Toward a Cultural History of the Player Piano)

**Maria Ortiz**, *Spanish and Portuguese*

Cleansing the Savannahs from Tigers, Snakes and Indians: The Llanero Frontier in The Vortex of Jose Eustasio Rivera.

**11:30-12:30 pm- Biological and Health Sciences: Physiology and Molecular Biology (Rm 214)**

Moderators:

**Scott Schachtele**, *Biological Sciences*

**Priyanka Hingne**, *Physical Therapy and Rehabilitation Science*

Presenters:

**Fuh-Cherng Jeng**, *Speech Pathology and Audiology*

Electrically Evoked Auditory Steady-State Responses in Guinea Pigs

**Christina Freisinger**, *Biological Sciences*

Regulators of G Protein Signaling (RGS) in Heart Patterning: Functional Characterization in Zebrafish

**Banoo Malik**, *Biological Sciences*

Investigating the evolution of meiosis by studies of gene duplication that include the protists

**11:30-12:30 pm- Math, Physical Sciences and Engineering: Physics and Astronomy (Rm 234)**

Moderator:

**Ivan Georgiev**, *Chemistry*

Presenters:

**Omer Mermer**, *Physics and Astronomy*

Novel Magnetic Field Sensor Based on Organic Emitting Diode and its Touch Screen Applications

**Anthony Moeller**, *Physics and Astronomy*

Zero Degree Calorimeter for the CMS Experiment

**Yusuf Gunaydin**, *Physics and Astronomy*

K/n production at the MIPP(E907) Experiment

**11:30-12:30 pm- Math, Physical Sciences and Engineering: Engineering in Industry and the Environment (Rm 240)**

Moderator:

**Syed Kazmi**, *Mathematics*

Presenters:

**Qingyu Yang**, *Industrial Engineering*

Reliability of Two-Stage Weighted-k-out-of-n Systems with Components in Common

**Pradeep Mandapaka**, *Civil and Environmental Engineering*

Estimation of Radar-Rainfall Error Spatial Covariance: A Simulation Study

**Gabriele Villarini**, *Civil and Environmental Engineering*

Empirical Characterization of Radar Rainfall Uncertainties: Preliminary Results

## **Concurrent Session C, 1:30-2:30**

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### **1:30-2:30 pm- Humanities: Identity in Popular Culture (Rm 134)**

Moderator:

**Elizabeth John**, *Pharmaceutical Socioeconomics*

Presenters:

**Robert Ostheimer**, *American Studies*

I'm invulnerable to damage, theft or things bouncing off a superhero's chest within 90 days of purchase: Jewish Identity in the Superman/Seinfeld/American Express Web Advertisements

**Allison McGuffie**, *Film Studies*

Playing an Ironic Game: The Discursive Significance of Angelina Jolie and Megan Mullally's Evasive Language

**Francesco Dalla Vecchia**, *Music/Musicology*

Palestinians vs Jews in Penny Woolcock's film "The Death of Klinghoffer."

### **1:30-2:45 pm- Humanities: Philosophy 1 (Rm 140)**

Moderator:

**Marshall Willman**, *Philosophy*

Presenters:

**Amy Eli Trautwein**, *Philosophy*

The Path From Event to "I Remember When"

**Anthony Bryson**, *Philosophy*

A Critique of BonJour's Anti-Foundationalist Argument

**Amber Griffioen**, *Philosophy*

Reasons/Motives Internalism and Problems of Irrationality

**Karla Stevenson**, *Communication Studies*

Legitimizing Isocrates: An Examination of Phronesis' Role in Deliberative Democracy

### **1:30-2:45 pm- Social Sciences and Education: Issues in Culture and Race (Rm 214)**

Moderator:

**Michael Matthews**, *Teaching and Learning*

Presenters:

**Dana Figlock**, *Psychology*

Socio-Contextual Study of College Student Drinking: 1983-2000

**Tricia Seifert**, *Counseling, Rehabilitation and Student Development*

The Effects of Diverse Faculty Characteristics on Dimensions of Job Satisfaction

**Tina Wildhagen**, *Sociology*

Cultural Capital Matters: How Cultural Capital Affects the Racial Gap in Academic Achievement

**Angela Kellogg**, *Counseling, Rehabilitation and Student Development*

Exploring Critical Incidents in the Multiracial Identity of College Students

### **1:30-2:30 pm- Biological and Health Sciences: Pharmaceutical and Health Sciences (Rm 234)**

Moderator:

**Beth Miskimins**, *Medicinal and Natural Products Chemistry*

Presenters:

**Shaowei Wan**, *Clinical and Administrative Pharmacy*

Baseline Conditions Related to Changes in Community Pharmacy Mix and Availability between 1994 and 2002

**Xiaoyun Pan**, *Pharmacy*

Interdisciplinary Collaborative Research in Pharmacy Practice

**Nicole Brogden**, *Medicinal and Natural Products Chemistry*

Development of a Novel Means to Detect Protein Adducts of an Endogenous Neurotoxin Potentially Involved in Parkinson's Disease

### **1:30-2:45 pm- Math, Physical Sciences and Engineering: Mechanical and Industrial Engineering (Rm 240)**

Moderator:

**Deepak Bharkada**, *Biomedical Engineering*

Presenters:

**Weixuan Yang**, *Mechanical and Industrial Engineering*

Temperature-Related Cauchy-Born Rule for Multiscale Modeling of Crystalline Solids

**Birsen Donmez**, *Industrial Engineering*

Mitigating Driver Distraction by Providing Real Time Feedback based on Eye Glances

**Monica Lees**, *Mechanical and Industrial Engineering*

Collision Warnings and Driver Brake Response to Critical and Non-Critical Events

### **Concurrent Session D, 3:30-5:00**

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#### **3:30-5:00 pm- Humanities: Art and Art History (Rm 114)**

Moderator:

**David Morris**, *Communication Studies*

Presenters:

**Jennifer Baum**, *Art and Art History*

Other as Child: The Paintings of Yoshitomo Nara

**Crystal Gauger**, *Art and Art History*

From the Esoteric to the Exoteric: Les Nabis and the Visual Link

**Li Jun Liu**, *Art and Art History*

Girls Have a Penis, Boys Have a Vagina: Photographic Transcendence in Claude Cahun's Self-Portrait of 1928

**Kate Elliott**, *Art and Art History*

Promotional Painting: Robert Walter Weir's Landing of Henry Hudson

#### **3:30-5:00 pm- Humanities: Philosophy 2 (Rm 134)**

Moderator:

**Amy Eli Trautwein**, *Philosophy*

Presenters:

**Marshall Willman**, *Philosophy*

Wittgenstein on Seeing and Believing

**George Wrisley**, *Philosophy*

Realism, Putnam, and Multiple Descriptions of the World

**Heather Libby**, *Philosophy*

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Does It Matter if Moral Facts are Explanatorily Powerful? A Case Against Explanatory Arguments, Offered as Reassurance to the Realist

**Peter LeGrant, *Philosophy***

Nietzsche's Approaches to Prehistory in the Genealogy of Morals

### **3:30-5:00 pm- Humanities: Religious Studies (Rm 140)**

Moderator:

**Robert Ostheimer, *American Studies***

Presenters:

**Calvin Lane, *Religious Studies***

Sign and Signified: The Eucharistic Theology of Berengar of Tours

**Daniel Boscaljon, *English***

The Noble Pardoner: Faith and Negativity in Chaucer

**PJ Johnston, *Religious Studies***

Vasubandhu's Refutation of All Heresies

**Steven Fink, *Religious Studies***

Of Humility and Hopefulness: Al-Ghazali's Conception of the Self

### **3:30-5:15 pm- Social Sciences and Education: Teaching and Learning (Rm 214)**

Moderator:

**Grant McCall, *Anthropology***

Presenters:

**Yayuk Mardiaty, *Education***

Developing Democratic and Historical Thinking Through Music Instruction: Gamelan and Javanese History as a Case Study

**Patricia Wade, *Educational Psychology***

University Students' Spelling Proficiency and Implicit Learning of Words During Text Reading

**Michael Matthews, *Teaching and Learning***

Mathematical Preparation of Preservice Elementary Teachers

**Ryan Wells, *Educational Policy and Leadership Studies***

Persistence in Higher Education: The Effects of Social and Cultural Capital

**Samuel Van Horne, *Teaching and Learning***

Analyzing the Effect of Course Management Systems on Teaching and Learning

### **3:30-5:15 pm- Social Sciences and Education: Interpersonal Dynamics (Rm 234)**

Moderator:

**Dana Figlock, *Psychology***

Presenters:

**Angela Borsella, *Communication Studies***

Parent-Child Alliance Coding Inventory

**Jason Rose, *Psychology***

The Persistence of Comparative -Optimism and -Pessimism Biases in Competitions: Evidence for Motivated Reasoning

**Robin Barry, *Psychology***

Assessing Disengagement in Romantic Relationships

**Rebecca Brock, *Psychology***

Adequacy of Spousal Support Explains the Link between Chronic Stress and Marital Satisfaction

**Grace White, *Psychology***

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Hostility in Marriage: The Behavioral Effects of Trait Hostility on Marital Interaction & Satisfaction

**3:30-5:00 pm-** Math, Physical Sciences and Engineering: Mathematics and Computer Science (Rm 240)

Moderator:

**Sarah Vigmostad**, *Biomedical Engineering*

Presenters:

**Syed Kazmi**, *Mathematics*

Internal Approximation of Obstacle Problems

**Alfredo Villanueva**, *Mathematics*

Procedure of Prolongation in a Systemic Manner for an Overdetermined System

**Giovanna Lloset**, *Mathematics*

The stable endomorphism group of non-simple string modules over a very particular finite dimensional algebra

**Imran Pirwani**, *Computer Science*

Extending the Lifetime of Wireless Networks

## Poster Session Schedules

### Poster Session 1, 10:30-11:30 Main Lobby

- 1-1 Ashot Vardanyan, *Teaching and Learning***  
Birds of a Feather...Don't Flock Together. Josip vs Joseph
- 1-2 Yifei Liu, *Social and Administrative Pharmacy***  
Self-efficacy and Perceived Difficulty in the Factor Structure of Perceived Behavioral Control
- 1-3 Chia-Hui Chiu, *Teaching and Learning***  
The Acquisition of Word Meanings in a Second Language
- 1-4 Jessica Horst, *Psychology***  
Fast Mapping But Not Fast Word Learning: Referent Selection Without Retention
- 1-5 Scott Schachtele, *Biological Sciences***  
Early Dendritic Spine and Synapse Development in Auditory Cortical Pyramidal Neurons in vivo
- 1-6 Andrew Gall, *Psychology***  
Contributions of the Dorsolateral Pontine Tegmentum to Wakefulness in the Infant Rat
- 1-7 Kirill Nourski, *Neuroscience***  
Forward Masking of the Auditory Nerve Electrically Evoked Compound Action Potential
- 1-8 Amy Jo Marciano-Reik, *Psychology***  
The Development of Hindlimb Coordination in the Neonatal Rat: Motor Training Modifies Serotonin-Induced Stepping
- 1-9 Paul Brezinski, *Health Management and Policy***  
Not-for-Profit Hospital Governance Reform: What Does the Evidence Show?
- 1-10 Fadi Alkhateeb, *Clinical and Administrative Pharmacy***  
Influences on Consumer Spending for Herbal Products
- 1-11 Elizabeth John, *Pharmaceutical Socioeconomics***  
The Effect of High-Risk Medications on Visit Time with Physicians: Results From The NAMCS Survey
- 1-12 Arlene Sy, *Chemistry***  
New Aranorosin Analogs and New Decarestrictine Analog From An Unidentified Fungal Species
- 1-13 Beth Miskimins, *Medicinal and Natural Products Chemistry***  
Differential Inhibitory Activity of Glycosaminoglycans against Antimicrobial Peptides
- 1-14 Elif Albayrak, *Astronomy and Physics***  
SLHC Detector Upgrade R&D Studies for CMS Hadron Calorimeter
- 1-15 Jonglak Choi, *Chemistry***  
Solvothermal Synthesis of Nanocrystalline Copper Nitride from Energetically Unstable Copper Azide Precursor
- 1-16 Warren Clarida, *Physics***  
Geant4 Simulations for Quartz Plate Calorimeter Prototype

## Poster Session 2, 2:30-3:30 Main Lobby

- 2-1 Hannah Marsh and Joshua Polanski, *Anthropology***  
Knuckle-walkers unite: separating platigrade locomotors through talo-calcaneal facet morphology
- 2-2 Yeon Kyeong Kim, *Journalism and Mass Communication***  
Framing Katrina in Black and White: News in the Chicago Defender and the Star Tribune
- 2-3 Hoi-ok Jeong, *Political Science***  
Popular Presidents' Strategy Under Divided Government
- 2-4 Daniel Proctor, *Anthropology***  
Multidimensional Morphometrics of the Proximal Hallucal Metatarsal Articular Surface in Hominoids
- 2-5 Amit Saraf, *Pharmacology***  
The neuronal B b regulatory subunit targets protein phosphatase 2A to modulate tyrosine hydroxylase activity
- 2-6 Lei Yu, *Radiation Oncology***  
The transcriptional activity of AP-2 is not required to alleviate the apoptosis induced by c-Myc, an inhibitor of AP-2 DNA binding
- 2-7 Jason Caldwell, *Biological Sciences***  
Genetic and molecular analysis of the deafness and male sterility candidate gene, *elfless*, in *Drosophila melanogaster*
- 2-8 Patricia Schneider, *Genetics***  
Role of the RGS (regulator of G protein signaling) domain of Axin in Vertebrate Axis Formation
- 2-9 Priyanka Hingne, *Physical Therapy and Rehabilitation Science***  
Differences in waveform characteristic has no effect on the anti-hyperalgesia produced by TENS in rats with joint inflammation
- 2-10 Kristin Ness, *Pathology***  
Dynamic changes in murine Langerhans cell migration as a result of chronic ethanol consumption
- 2-11 Justin Drake, *Physiology and Biophysics***  
Assessing Tumor Growth and Distribution in a Model of Prostate Cancer Metastasis using Bioluminescence Imaging
- 2-12 Ali Jabbari, *Immunology***  
The Impact Of Prime-Boost Vaccination Regimens On The Generation Of CD8 T Cell Memory
- 2-13 Yongming Zhao, *Clinical and Administrative Pharmacy***  
Factors Affecting Early Nephrology Care Prior to Hemodialysis Initiation Among Elderly Patients with End-Stage Renal Disease
- 2-14 Zugui Zhang, *Biostatistics***  
Variation in Yearly Residential Radon Concentrations in the Upper Midwest
- 2-15 Juh-Hyun Shin, *Nursing***  
Evaluation and promotion of exercise program for the elderly in a residential settings
- 2-16 M. Bryant Howren, *Psychology***  
Role of Depression and Neuroticism in Open- and Closed-Ended Symptom Reports among Myocardial Infarction Patients
- 2-17 Kimberly Bell, *Oral and Maxillofacial Surgery***  
Caries Experience in Methamphetamine Users
- 2-18 Nicki Baman, *Biomedical Engineering***  
Immunostimulatory Microparticle Cancer Vaccines
- 2-19 Heather McDonald, *Civil and Environmental Engineering***  
Analysis of Sulfide Inhibition in Anaerobic Biofilm Reactors Fed a Sulfate-Rich Wastewater
- 2-20 Srinivas Tadepalli, *Mechanical Engineering***  
Collagen Fiber Remodeling in Anisotropic Tissue Membrane

## Professional Development Session Schedules

### “Excellence in Graduate Teaching” roundtable discussion, 11:00-11:30 (Room 114)

An integral part of the education at the University of Iowa is the work of Graduate TA's. This group of outstanding TA's from across campus, all winners of the University of Iowa Council on Teaching Outstanding Teaching Assistant Awards in recent years, will gather and discuss common themes in teaching as graduate TA's, offer advice and field questions from conference attendees.

Moderator:

**David Taylor**, *Philosophy*

Panelists:

**Kelly Boss**, *Chemistry*

**Dan Caprar**, *Management & Organizations*

**Ramon Cuellar**, *Chemistry*

**Esteban Diaz**, *Mathematics*

**Douglas Dowland**, *English*

**Heather Gruber**, *Classics*

**Heidi LaVine**, *English*

**Rebecca Sheir**, *English*

**Vanessa Simmering**, *Psychology*

**Robert Simmons**, *Classics*

### “The Dissertation and Beyond” panel discussion with lunch, 12:30-1:30 (Room 114)

Preparing the dissertation and devising the next big steps in one's life are daunting and challenging tasks for graduate students approaching the end of their training. However, when done right, the experience of encapsulating one's work and stepping out into the real world can also be tremendously rewarding and successful. Winners of the D.C. Spriestersbach Dissertation Prize and the Graduate Deans' Distinguished Dissertation Award from recent years will be sharing their insights into the process of finishing graduate school and starting something entirely new.

### “Mentoring as Graduate Students” roundtable discussion, 3:00-3:30 (Room 114)

Part of being a graduate student is often serving as a mentor to undergraduates and junior graduate students. This group of panelists who have been nominated for the 2006 Outstanding Graduate Students as Mentors Awards will be discussing their experiences as graduate student mentors and answer questions about mentoring relationships in graduate school.

Moderator:

**Kara Recker**, *Developmental Science*

Panelists:

**Carla Calarge**, *French and Italian*

**Ana Lilia Campos**, *Sociology*

**Erica Hannickel**, *American Studies*

**Michael Hitchler**, *Radiation Oncology*

**Zlatan Krizan**, *Personality and Social Psychology*

**Richard McCarty**, *Religious Studies*

**Sammy Perone**, *Developmental Science*

**Joshua Weller**, *Personality and Social Psychology*

## Abstracts By Division Biological and Health Sciences Division

### **Fadi Alkhateeb**, *Clinical and Administrative Pharmacy*

#### **Influences on Consumer Spending for Herbal Products**

Introduction: Despite the rapid growth in consumer spending on herbal products, we know little about factors that influence such spending. Objective: To use a model of adoption to investigate consumers spending on herbal products. Methods: The study used a mail survey of a stratified random sample of 1,300 consumers. Independent variables were consumer characteristics, social systems, communication channels and herbal characteristics. The amount of spending on herbs was the dependent measure with responses divided into monthly spending of \$10 or less and more than \$10. Results: Of the 1,300 mailed surveys there were 456 usable returned surveys, yielding a usable response rate of (37.3%). The overall logistic regression was significant ( $p < 0.05$ ). The significant influences on spending on herbals were age, OTC use, and use of an herb professional as an information source about herbs. Conclusion: An adoption model may be useful in explaining consumers spending on herbal products.

### **Kimberly Bell**, *Oral and Maxillofacial Surgery*

#### **Caries Experience in Methamphetamine Users**

Adverse oral and systemic health effects, including “meth mouth,” have been reported with chronic use of the sympathomimetic drug, methamphetamine (i.e. meth). OBJECTIVE: We compared differences in dietary habits and caries experience between meth users and non-users. METHODS: Meth subjects were identified by voluntary disclosure of past meth use. The control group consisted of age-and gender-matched individuals without a history of meth use. Participants completed a questionnaire to assess dietary habits and previous drug use and underwent a standardized oral exam in the U of Iowa Oral Surgery Clinics. RESULTS: Numbers of teeth did not differ between meth users ( $n=7$ ) and meth non-users ( $n=7$ ). However, meth use was associated with a significantly higher percentage of caries experience in molars ( $0.71 \pm 0.40$  users vs.  $0.08 \pm 0.12$  non-users;  $p=0.022$ ) and anteriors ( $0.65 \pm 0.40$  vs.  $0.03 \pm 0.08$ ;  $p=0.003$ ); a similar trend was observed in premolars ( $0.54 \pm 0.46$  vs.  $0.07 \pm 0.10$ ;  $p=0.061$ ). More meth users had plaque on teeth (100%) than non-users (33%) ( $p=0.021$ ). CONCLUSION: The pilot data suggest that meth users have a greater risk of caries experience than non-users, supporting anecdotal reports of greatly increased caries risk among meth users.

### **Paul Brezinski**, *Health Management and Policy*

#### **Not-for-Profit Hospital Governance Reform: What Does the Evidence Show?**

In recent years there has been an increasing number of governance reform initiatives designed to strengthen the agency relationship between boards and those the boards represent. A number of these initiatives have been targeted at the for-profit sector, but have significant relevance for not-for-profit organizations, particularly considering the increasing complexity and growth of the not-for-profit sector. Research has shown that there is variation in how seriously not-for-profit hospitals are taking these reforms and in how they are applying reform initiatives to their own organizations, particularly in the areas of compensation and audit. Organizational size and resource availability may serve to impede the rate of change.

### **Nicole Brogden**, *Medicinal and Natural Products Chemistry*

#### **Development of a Novel Means to Detect Protein Adducts of an Endogenous Neurotoxin Potentially Involved in Parkinson's Disease**

Dopamine (DA) undergoes oxidative deamination via monoamine oxidase to 3,4-dihydroxyphenylacetaldehyde (DOPAL). Previous studies demonstrated DOPAL to be neurotoxic, suggesting that aberrant levels of the DA-derived aldehyde play a role in Parkinson's Disease pathogenesis. The mechanism of DOPAL neurotoxicity is not known; however, it may involve protein modification as the DA-derived aldehyde is reactive toward proteins. The goal of this research is to develop a novel means of identifying proteins modified by DOPAL. An aminophenyl boronic acid-agarose (APBA) resin was incubated overnight with bovine serum albumin (BSA) and BSA modified by DOPAL at alkaline pH. The resin was washed, and bound proteins were released using acidic glycine buffer (30 minutes at 80°C). Analysis of the samples by SDS-PAGE and Western blotting, using anti-BSA antibodies, demonstrated that APBA resin specifically binds protein modified by DOPAL. Future studies with the novel technique will include isolation and identification of DOPAL-modified proteins in the mitochondria.

**J Caldwell, *Biological Sciences***

**Genetic and molecular analysis of the deafness and male sterility candidate gene, *elfless*, in *Drosophila melanogaster***

In our lab, we study the molecular mechanisms of hearing in *Drosophila*. Often, male sterility is associated with deafness due to defects in shared ciliated structures found in the flagella (tails) of sperm and the neurons of the fly antenna (the hearing organ). We located one such deafness and male sterility region of the fruit fly genome and investigated a candidate gene, *elfless*, in this locus. We were initially interested in studying this gene because previous reports suggested that *elfless* might be involved in male fertility. *elfless* encodes an 187 amino acid protein with a RING-finger motif and is predicted to be a component of the E3 ubiquitin ligase complex (protein degradation machinery). Molecular analyses of RINGS in various organisms have shown that these proteins can be involved in ubiquitination, transcriptional regulation, RNA processing, and many other processes. Our hypothesis was that *elfless* encoded an integral part of both the deafness and male sterility molecular pathways through its role in protein degradation. Our findings suggest that *elfless* has no essential role in either process, but rather appears to be a non-essential testes-enhanced ubiquitin pathway factor

**Justin Drake, *Physiology and Biophysics***

**Assessing Tumor Growth and Distribution in a Model of Prostate Cancer Metastasis using Bioluminescence Imaging**

Bioluminescence imaging (BLI) has greatly facilitated the development of animal models of cancer, allowing the sensitive detection of luciferase-expressing cancer cells in living mice. We have employed BLI to serially image the growth and distribution of a prostate cancer cell line, 22Rv1, after intracardiac injection into scid mice (n=85). Properly injecting the cancer cells into the left ventricle remains challenging, therefore we developed a system that accurately predicts tumor outcome after intracardiac injection. To predict tumor outcome we measured the ratio of the thoracic to the whole body BLI signal (T/WB ratio) following intracardiac injection. A T/WB ratio below 0.50 predicted that >80% of mice will develop tumors outside of the thoracic cavity. Tumors colonized many organ sites including bone, liver, and adrenal gland by *ex vivo* BLI. With the ability to more accurately predict injection success, we can now monitor efficacy of intracardiac injections facilitating the performance of this model.

**Christina Freisinger, *Biological Sciences***

**Regulators of G Protein Signaling (RGS) in Heart Patterning: Functional Characterization in Zebrafish**

Abnormal cardiac development or vessel formation can result in congenital heart defects as well as systolic heart failure, the primary cause of human morbidity and mortality. Our research is aimed at understanding basic cellular processes, in particular, how signals are transmitted within a cell to ensure proper function. The specific class of proteins we study, Regulators of G protein Signaling (RGS proteins), are involved in turning 'off' signaling cascades in the heart. We believe that these proteins are involved in heart development, and are testing to see whether heart development is altered in zebrafish missing these proteins. I hypothesize that by controlling the activation of heart-specific signal-dependent transcription factors RGS proteins have key roles in heart development and maintenance. This proposal summarizes our progress to date on the functional characterization of RGS proteins.

**Andrew Gall, *Psychology***

**Contributions of the Dorsolateral Pontine Tegmentum to Wakefulness in the Infant Rat**

We recently described a key area of the brain, the dorsolateral pontine tegmentum (DLPT), which may be important for wakefulness in infant rats. To further explore the functional role of the DLPT region in 8-10-day-old rats, we used electrical stimulation to map the locations where high muscle tone is produced. Next, the cholinergic agonist carbachol was infused into this area, which produced rapid and reliable increases in muscle tone. The nucleus pontis oralis was then lesioned, producing chronic levels of high muscle tone. Then, in these lesioned subjects, the cholinergic antagonist scopolamine was infused into the DLPT, producing transient decreases in muscle tone. All together, these findings indicate that the DLPT and the nucleus pontis oralis are critically involved in a neural circuit such that the DLPT is important for wakefulness and the nucleus pontis oralis is important for sleep in infant rats.

**Priyanka Hingne**, *Physical Therapy and Rehabilitation Science*

**Differences in waveform characteristic has no effect on the anti-hyperalgesia produced by TENS in rats with joint inflammation**

Transcutaneous electrical nerve stimulation (TENS) is a non-pharmacological treatment for pain. Commercial TENS units differ in their waveform characteristics. However, effects of different waveforms on analgesia produced by TENS are unknown. Therefore, we compared effects of high frequency TENS with different waveforms - asymmetric biphasic square and symmetric biphasic square - on inflammatory hyperalgesia. Paw withdrawal latency to heat (PWL) was assessed prior to inflaming the knee joint with 3% carrageenan/kaolin in rats. PWL significantly decreased in all groups 4h after induction of inflammation indicating development of hyperalgesia. High frequency TENS was then applied to the inflamed knee joint for 20 minutes while the rat was lightly anesthetized with halothane. TENS treatment with either the asymmetric or symmetric waveform significantly increased the PWL when compared to sham TENS. Thus, differences in waveform characteristics do not affect the anti-hyperalgesia produced by TENS. Supported by EMPI, Inc.

**M. Bryant Howren**, *Psychology*

**Role of Depression and Neuroticism in Open- and Closed-Ended Symptom Reports among Myocardial Infarction Patients**

The associations among depression, neuroticism, and symptom complaints were investigated in subsidiary analyses in a sample of myocardial infarction (MI) patients (N = 391). As part of a broader study of treatment-seeking behavior, MI patients were asked to respond to an open-ended item regarding the symptoms experienced; this question was followed by a closed-ended review of common cardiac symptoms. Depression was measured with the PRIME-MD PHQ; neuroticism was measured with the Big Five Inventory. Symptom reports in response to each type of question were subjected to content analysis by independent raters, with excellent interrater reliability observed. Regression analyses indicated that severity of depressive symptoms was positively related to the number of cardiac symptoms endorsed in response to closed-ended (B = .092, SE = .017,  $p < .01$ ), but not open-ended, symptom complaints. Neuroticism was not a significant predictor of open- or closed-ended symptom complaints after controlling for depression. Results suggest that the complex cardiac symptom presentation experienced by depressed MI patients may go undetected--by both researchers and practitioners--unless the symptom assessment process is thorough and uses multiple formulations of key questions.

**Ali Jabbari**, *Immunology*

**The Impact Of Prime-Boost Vaccination Regimens On The Generation Of CD8 T Cell Memory**

The generation of antigen-specific CD8 T-cell memory, as by vaccination, reduces the morbidity and mortality associated with subsequent infections. Vaccinations that do not elicit a sufficient level of protection can be boosted by a secondary immunization, resulting in an increase in the number of memory CD8 T-cells. Nevertheless, the extent to which secondary memory (ie, boosted) CD8 T-cells (T2m) are functionally different than primary memory (T1m) is unknown. Memory CD8 T-cells are classified as central-memory or effector-memory; here we find that T2m have an effector-memory phenotype for prolonged periods of time, whereas T1m generated in parallel rapidly adopt a phenotype consistent with the more protective central-memory subset. However, we find that T2m are more protective on a per-cell basis against infection than central-memory-like T1m. These results indicate that T2m are functionally distinct from T1m, and that the protective capacities associated with memory subset phenotypes are not absolute.

**Fuh-Cherng Jeng**, *Speech Pathology and Audiology*

**Electrically Evoked Auditory Steady-State Responses in Guinea Pigs**

Is there a response that reflects the rhythm of sounds and can be recorded in cochlear implant recipients? And if so, what are the generators? In two experiments, adult guinea pigs were exposed to speech-like stimuli (i.e. amplitude modulated). During the initial phase, recordings were made using surface electrodes placed on the head of a subject. Three control conditions: (1) stimulation without amplitude modulation, (2) administration of a drug (tetrodotoxin) that blocks the nerve of the ear, and (3) postmortem recordings, indicated an auditory origin of the response. The second experiment extended these findings to different rates of modulation and suggested that the response was contributed by two distinct generators in the auditory part of the brain. This newly discovered response may find application in either clinical or basic research efforts.

**Elizabeth John, *Pharmaceutical Socioeconomics***

**The Effect of High-Risk Medications on Visit Time with Physicians: Results From The NAMCS Survey**

Determine whether physicians spend more time with patients prescribed high-risk medications like anticoagulants, anticonvulsants, antiarrhythmics, antidiabetics and beta agonists. Patient visit data to physicians from 2003 National Ambulatory Medical Care Survey were used. Visit time was the dependent variable. Independent variables included each high-risk medication and visit circumstances hypothesized to require more time: patient new to practice; patient's condition new; physician not the patient's primary physician. Visits lasted an average of 19 minutes and were significantly higher if the condition was new and the patient was prescribed anticonvulsants or antidiabetics; or the patient was new to the practice and was prescribed anticonvulsants. Patients not seeing their primary physician had lower visit times if prescribed anticoagulants or antidiabetics. No visit time increase for antiarrhythmics or beta agonists. Visit times increased with the prescribing of certain high-risk medications and during certain visit circumstances, but were not uniform across all high-risk medications.

**Banoo Malik, *Biological Sciences***

**Investigating the evolution of meiosis by studies of gene duplication that include the protists**

While people often wonder about their origins, this work seeks to elucidate the evolution of meiosis itself in eukaryotes. Meiosis is distinguishing feature of eukaryotes, being the component of sexual reproduction where homologous chromosomes replicate and recombine and ploidy is halved. Proteins of the meiotic recombination machinery have been studied in depth at the functional and genetic level in animals, plants and fungi but not protists, which represent the greatest evolutionary diversity of eukaryotes. To discern what is fundamentally common or derived in their meiotic machinery, I present an inventory of homologous meiotic proteins distributed across the evolutionary tree of eukaryotes. Notably, some putatively asexual lineages bear some parts of the meiotic machinery while they have apparently lost others. As well, some sexual lineages appear to be missing components. The core set of genes that define the meiotic machinery may comprise a slightly different set of proteins amongst various lineages.

**Amy Jo Marcano-Reik, *Psychology***

**The Development of Hindlimb Coordination in the Neonatal Rat: Motor Training Modifies Serotonin-Induced Stepping**

The effect of motor training on serotonin-induced stepping was examined in the neonatal rat. After a 5-minute baseline period, postnatal day one (P1) rats were exposed to 30-minutes of interlimb yoke training in the supine posture, in either the conjugate yoke training condition which enforces in-phase movements, alternated yoke training condition which enforces antiphase movements, or unyoked control condition (no training). During the 15-minute Test period after Training, yokes were removed and subjects were injected with either physiological saline or 3.0-mg/kg quipazine, a non-selective serotonin agonist that evokes alternated locomotor stepping behavior. Conjugate yoke training resulted in an increase of in-phase movements, which became more pronounced after administration of quipazine and remained elevated relative to control subjects. Thus, prior motor experience can influence interlimb coordination during species-typical patterns of locomotor behavior early in development.

**Beth Miskimins, *Medicinal and Natural Products Chemistry***

**Differential Inhibitory Activity of Glycosaminoglycans against Antimicrobial Peptides**

Antimicrobial peptides are an important component of the innate immune system and are instrumental in the elimination of a number of pathogens from the body. Cationic antimicrobial peptides (CAPs) exert their antimicrobial activity through membrane disruption and immunomodulatory effects. Recently, a number of polyanions, including members of the glycosaminoglycan (GAG) family, have been shown to inhibit the antimicrobial activity of select CAPs. As these interactions have not been fully characterized, the aim of our studies is to investigate the inhibitory effects of GAGs on the antimicrobial activity of CAPs from a chemical and structural perspective. Using a peptide derived from bovine lactoferricin, we have investigated the ability of different GAGs to inhibit antimicrobial activity to varying degrees. We show that a number of GAGs exhibit distinct inhibitory capacities for this peptide. Initial studies on the binding interactions between the lactoferricin peptide and select GAGs are also presented.

**Kristin Ness, Pathology**

**Dynamic changes in murine Langerhans cell migration as a result of chronic ethanol consumption**

Chronic alcohol consumption has profound effects on the immune system, often resulting in premature death from infection. Inappropriate migration of DC might play a role in the failure to initiate an appropriate immune response to pathogens. Experiments were designed to assess murine Langerhans cell (LC) migration out of the epidermis and into the lymph node. Chronic ethanol consumption in mice resulted in a progressive 30-40% baseline reduction in the frequency of LC. LC from ethanol fed mice demonstrated hyporesponsiveness to intradermal CpG after 4 weeks of consumption, but hyperresponsiveness after 8 weeks of consumption as compared to water fed control mice. Mice maintained on 20% ethanol for 4-16 weeks displayed delayed accumulation of FITC-bearing LC to the skin draining LN. These observations suggest chronic ethanol consumption negatively impacts the epidermal environment. Such handicaps in LC function may explain the heightened incidence of infections in alcoholics.

**Kirill Nourski, Neuroscience**

**Forward Masking of the Auditory Nerve Electrically Evoked Compound Action Potential**

Recent advances in cochlear implant (CI) technology and surgical techniques have been accompanied by broadening of implantation criteria. Specifically, many patients with significant residual acoustic hearing are now receiving CIs. In such patients, there may be auditory nerve fibers that receive input from remaining hair cells and are sensitive to electric stimulation by the CI. Understanding interactions between hair-cell mediated and direct electric modes of excitation is relevant for improving CI stimulation paradigms in patients with residual hair cell function. This study addressed the time course of the auditory nerve electrically evoked compound action potential (ECAP) recovery following electric stimulation in guinea pigs before, during and after reversible deafening with furosemide. Both in hearing and temporarily deafened conditions forward masking functions often featured a non-monotonic time course. The study suggests that post-stimulatory changes in neuronal firing rate and synchrony, unrelated to the hair cell-function, likely contribute to ECAP forward masking.

**Xiaoyun Pan, Pharmacy**

**Interdisciplinary Collaborative Research in Pharmacy Practice**

Interdisciplinary collaborative research (ICR) between researchers and practitioners has been increasingly used as a method to achieve mutual benefits and bridge practice and theory together. However, few literatures showed how to develop ICR between researchers and pharmacists in pharmacy practice. In this paper, we point out several advantages and barriers of developing ICR. Based on theories and experiences that McDonough and Doucette gained from their ICR team from 1997 to present, we develop an ICR team development model, which integrates five stages and explains the progression from one stage to another. Each stage represents a certain degree of collaborative relationship. The higher the stage is, the more advanced the relationship will be. The experience of Iowa Pharmaceutical Care Management (PCM) evaluation research is provided in order to illustrate the ICR model. Several practical issues raised from the PCM evaluation research will be discussed at the end of the paper.

**Amit Saraf, Pharmacology**

**The neuronal B b regulatory subunit targets protein phosphatase 2A**

H activity, increased by serine phosphorylation of the enzyme's N-terminal regulatory domain is opposed by protein phosphatase 2A (PP2A). We studied the specific composition of the PP2A holoenzyme(s) that dephosphorylate(s) and thereby inactivate(s) TH in PC6-3 cells. Treatment of PC6-3 cells with the PP2A inhibitor okadaic acid resulted in a dramatic increase in phosphorylation of TH at the PKA site Ser40. Expression of the brain-enriched B b regulatory subunit from a doxycycline-inducible promoter decreased basal (47±9%, N=5) TH phosphorylation at Ser40. In situ catecholamine synthesis assays showed that inducible expression of B b, decreased TH activity by 55±16% (N=5), confirming the findings with the phospho-Ser40 antibody. PC6-3 cell line expressing hpRNA directed against B b showed 95±30% increase in Ser40 phosphorylation of TH. This increase in phosphorylation was associated with 37±17% increase in situ TH activity. In vitro phosphatase activity assays demonstrated that B b directly and specifically dephosphorylated TH.

**Scott Schachtele, Biological Sciences**

**Early Dendritic Spine and Synapse Development in Auditory Cortical Pyramidal Neurons in vivo**

Synaptic organization of the auditory cortex can be rearranged upon perturbations of auditory input. This is particularly relevant to individuals with cochlear implants because, although they have regained their ability to hear,

there is little understanding of how the auditory cortex is responding to this change in sensory stimuli. In this study we investigate the molecular mechanisms underlying synapse formation in response to changes in auditory input by quantifying the in vivo rate of dendritic spine and synapse formation on auditory cortical neurons in normal and hearing deprived rats. We found that spine densities on apical and basal dendrites of layer 2/3 and 5 pyramidal neurons increase postnatally from <0.1 spines/um to >0.7 spines/um with a rapid increase in spine density occurring between postnatal days 11 and 19, corresponding to onset and maturation of hearing in the rat. Remarkably, auditory input was not necessary for normal rate of spine development.

### **Patricia Schneider, Genetics**

#### **Role of the RGS (regulator of G protein signaling) domain of Axin in Vertebrate Axis Formation**

The Wnt signaling pathway plays an important role in development and misregulation of Wnt signaling has been implicated in many human cancers. Due to its potent role, there is a complex of proteins that act as negative regulators of Wnt signaling including Axin, APC, GSK-3. This degradation complex binds to b-catenin preventing Wnt-induced transcription of target genes. The Axin protein contains 4 key domains: a b-catenin binding domain, a GSK binding domain, an RGS domain and a DIX domain (protein interaction domain). This study focuses on the role of the Axin-RGS (Regulator of G protein Signaling) domain. RGS proteins have been identified as regulators of the active half-life of G-protein signaling but the Axin RGS domain has also been shown to interact with APC and play an important role in b-catenin degradation and Wnt signaling inhibition.

### **Juh-Hyun Shin, Nursing**

#### **Evaluation and promotion of exercise program for the elderly in a residential settings**

The purpose was to examine the effectiveness of exercise program for the elderly in a residential setting. A longitudinal design, one group pretest- 3 posttest design, was used. The sample was 34 persons age 65 or over who have participated in the structured exercise programs from July/2003 to January/2005. The fitness center provides diverse equipment with options to meet members' needs. To examine the degree of improvements, the fitness director has recorded the attendance and time and tested every 6 month by using Senior Fitness Test. The criterion validity of SFT is high (.71 to .84) and the test-retest reliability range was high (from .80 to .96). The tests were repeated 3 times at 6 month interval. There were no differences between age groups. The scores of 8-ft-up-and-go, arm curl, chair stand, and sit and reach tests had improved over time. The scores between female and male were different in the six minute walk test and chair sit-and-reach test. There were certain differences in test scores between those who have 3 or less than 3 medications and those who have more than 3 medications.

### **Arlene Sy, Chemistry**

#### **New Aranorosin Analogs and New Decarestrictine Analog From An Unidentified Fungal Species**

Fungi are organisms capable of showing antagonistic activity against each other. Mycoparasitism is one form of antagonistic activity where one fungal species feeds on another fungus or produce secondary metabolites that inhibit the growth of the other fungi. This kind of activity benefits plants infected with a fungal disease when the mycoparasitic fungi is introduced into the plant. One unidentified mycoparasitic fungal species (MYC1117) which showed a good anti-insectan activity, was studied in our laboratory. Two new aranorosin analogs, a new decarestrictine analog and the known anti-insectan sterigmatocystin as the major secondary metabolite, were obtained from the species. Structure of the new compounds were elucidated using 1D and 2D NMR spectroscopy and ESI mass spectrometry. The relative configuration of the new decarestrictine analog was obtained through NOESY and x-ray crystallography. Details of the isolation and structure determination will be presented.

### **Shaowei Wan, Clinical and Administrative Pharmacy**

#### **Baseline Conditions Related to Changes in Community Pharmacy Mix and Availability between 1994 and 2002**

The objective of the study is to assess what types of baseline county characteristics in 1994 were related to changes in the availability of community pharmacy. The baseline county characteristics include population factors, payer factors, health care system factors and competitive factors. Secondary data sources were used to create a county level data set containing the type and the number of pharmacies for 1994 and 2002 along with baseline market factors in 1994. Total community pharmacies and percentage of independent pharmacies experienced a net loss, while chain pharmacies showed an increase in the number over the time period. Regression analysis showed that a decrease in the total number community pharmacies and proportion of independents is linked to underlying

economic conditions facing the population in a local market area. Independent pharmacies tend to serve the poorer areas while chain pharmacies are attracted to the wealthier areas with more robust economies.

**Lei Yu, *Radiation Oncology***

**The transcriptional activity of AP-2 is not required to alleviate the apoptosis induced by c-Myc, an inhibitor of AP-2 DNA binding**

Transcription factor AP-2a and c-MYC are important transcription factors involve in the process of carcinogenesis and development. They both showed the capacity to stimulate cell proliferation and apoptosis. AP-2a was previously found to interact with c-MYC through its C-terminal. We found that overexpression of c-MYC, *in vivo*, could induce massive cell apoptosis in both human keratinocyte and breast cancer cell that with mutant p53. Growth curve, clonogenic survival assay, active caspase-3 and DNA PI (propidium iodide) staining all demonstrated that co-expression of either wild type or transactivating domain truncated AP-2a could partially inhibit the apoptosis induced by c-MYC, which suggested that the transcriptional activity of AP-2a was not required for the inhibition. *In vitro* experiments with recombinant protein showed that c-MYC could inhibit AP-2 DNA binding activity stoichiometrically. c-MYC competed with DNA oligos for the AP-2 DNA binding domain. C-terminal truncated AP-2, AP-2S420T, showed an increased DNA binding activity and higher sensitivity to MYC. We concluded that c-MYC could induce apoptosis independent to p53, while AP-2 could block this induction through a protein-protein interaction way.

**Zugui Zhang, *Biostatistics***

**Variation in Yearly Residential Radon Concentrations in the Upper Midwest**

It is well-known that inhalation of radon (<sup>222</sup>Rn) and <sup>222</sup>Rn decay products increase the risk of lung cancer and is considered the second leading cause of lung cancer next to smoking. The Upper Midwest, including Iowa, has the highest radon concentration in the U.S. However, there is lack of studies that examine the temporal <sup>222</sup>Rn variation in homes in different geographic regions and over numerous years. The purpose of this study is to fill this gap by examining temporal variation of radon concentrations in homes over time and investigating factors that impact the temporal variability of radon measurements. The coefficient of variation (COV) was used as a measure of relative variation between multiple measurements in different areas of the same floor. It was found that time is the most important factor affecting the COV. Other key factors include whether toilet stool, bathtub, or wash machine were presented in basement.

**Yongming Zhao, *Clinical & Administrative Pharmacy***

**Factors Affecting Early Nephrology Care Prior to Hemodialysis Initiation Among Elderly Patients with End-Stage Renal Disease**

The objective is to identify factors influencing early nephrology care, defined as seeing a nephrologist from 4 to 12 months before starting dialysis among elderly patients who later progress to end-stage renal disease (ESRD) and initiate hemodialysis. Multivariate logistic regressions indicated that patients who were male, had hypertension, anemia, lived in an area with more nephrologists per 1,000 prevalent elderly ESRD patients were more likely to obtain early nephrology care. Patients older than 76 years, having diabetes, living in an area with more non-nephrologist physicians per 10,000 population had a lower likelihood of getting early nephrology care. Patients residing in areas 12 miles or more away from the nearest nephrologist had a smaller odds ratio of receiving early nephrology care compared to patients living in an area less than 4 miles away. Elderly patients' characteristics and access to local non-nephrologist physicians and nephrologists influence the use of early nephrology care.

## Fine and Performing Arts Division

### **Francesco Dalla Vecchia, *Music/Musicology***

#### **Palestinians vs Jews in Penny Woolcock's film "The Death of Klinghoffer."**

"The Death of Klinghoffer" -by John Adams (composer), Peter Sellers (producer), and Alice Goodman (librettist)- is a controversial work because it presents the point of view of Palestinian terrorists, it invites considering their motivations, and it may seem to absolve them for murdering a Jewish-American citizen. Labeled as anti-Semitic, this opera was picketed at the New York premiere in 1991. Just months after the attack on the Twin Towers, this opera on terrorism became a feature film by the English filmmaker Penny Woolcock. Obviously the film risked inheriting part of the original criticism of the opera but at the 2004 Ramallah Palestinian Festival this film was rejected as being pro-Israeli. What happened? Did Woolcock really turn around the subject matter? I have investigated Woolcock's modifications of the opera focusing on the first two choruses that form the prologue because they effectively exemplify the transformation of the work.

### **Jynelle Gracia, *Nonfiction writing program***

#### **Senior Class Portrait**

"Senior Class Portrait" is a found essay comprised of sentences lifted from the dedications that line the inside covers of a high school yearbook. The sentences are reorganized to offer a parallel narrative of the school year, to parody the yearbook dedication form, and to reveal the personality of a class.

### **Jennifer Proctor, *Cinema and Comparative Literature***

#### **Alternative Forms of Energy**

Alternative Forms of Energy examines the parallels between the grassroots manufacture of biodiesel (automobile fuel made from vegetable oil) and the construction of the handmade film.

### **Andre Silva, *Cinema and Comparative Literature***

#### **The One and the Many**

Several actors mimic split-second fragments of a pre-recorded monologue based on 17th century philosopher Gottfried Leibniz's ponderings. The film juxtaposes the collective recreation of the monologue with the spontaneous gestures of actors who dutifully struggle with this very foreign exercise.

### **Ulrich Adelt, *American Studies***

#### **Trying to Find an Identity: Eric Clapton's Changing Conception of "Blackness"**

In my presentation, I am seeking to connect Eric Clapton's music from the 1960s with the history of the "white negro" in a particular British context. I am using Eric Clapton as an exemplary figure of the British blues movement of the 1960s and critically interrogate Clapton's constructions of blackness and authenticity as they appear in his interviews as well as the music itself. I will devote attention to the transformation from blues to rock, which for Clapton and others was linked to the hippie counterculture and translated into commercial success in the United States as well as Europe. Finally, I will compare Clapton's embrace of "black" sounds to his endorsement of British politician Enoch Powell's anti-immigration campaigns in the 1970s. Overall, I am concerned with the complexities of Eric Clapton's blues which include exploitative and colonialist attitudes as well as impressive artistic creativity.

### **Jennifer Baum, *Art and Art History***

#### **Other as Child: The Paintings of Yoshitomo Nara**

Everyone loves that the artist Yoshitomo Nara is such a maverick; a popular outsider that shatters conventions in order to see into the intimate soul of someone--of anyone. Paradox permeates Nara's work, such as in the way he addresses his relationship to innovations versus history, to the individual vs. the collective, to subjectivism vs. the global market, and to East vs. West. Nara produces works out of a Japanese economy which self-consciously and competitively positions itself against the West. His works, which range from paintings to sculptures, provide lucrative therapy that elicits a cathartic response in the viewer at the same time that the works cooperate with the very systems that produce this therapeutic need. Nara paints mostly images of little girls whose cartoon-like faces connote an innocence that belies their ominous surroundings. Through the contradictions in Nara's work, we see an awareness of both subjective and political realities.

### **Daniel Boscaljon, *English***

#### **The Noble Pardonier: Faith and Negativity in Chaucer**

The Pardonier is one of the most perplexing figures in Chaucer's *Canterbury Tales*, and is currently at the center of much Chaucer criticism. The purpose of this essay is not to attempt to add yet another interpretation of the Pardonier, but instead to discuss the way in which the Pardonier is able to sustain multiple and contradictory truth claims. I also will show the way that the Pardonier's confession of hypocrisy can be understood as a way of moving individuals to a more true understanding of a religious faith.

### **Anna Bostwick, *History***

#### **Federal Festival for Female Radicals Financed with Your Money : The Impact of the IWY National Women's Conference on Ratification of the Equal Rights Amendment**

As the campaign for the Equal Rights Amendment trudged on, feminists worked harder than ever to convince legislators in unratified states like Oklahoma to ratify the politically divisive amendment. The controversy peaked in November 1977 when anti-ERA Oklahoma delegates to the International Women's Year National Conference created an inflammatory display purporting to represent the activities of the feminist-dominated Conference. The display used materials from privately funded exhibits at the Conference to link ERA to abortion, homosexuality, and other controversial issues. As the display traveled throughout Oklahoma and across the unratified states, Oklahoma ratificationists faced a difficult choice: They could either refuse to whitewash their rhetoric or their actions in an effort to defend the integrity of their movement, or they could make their agenda more palatable to the mainstream. Oklahoma ratificationists decided to disassociate themselves from both radical feminism and, eventually, the Conference itself, but their efforts were in vain.

### **Anthony Bryson, *Philosophy***

#### **A Critique of BonJour's Anti-Foundationalist Argument**

When Laurence BonJour published "The Structure of Empirical Knowledge," he seemed to have found a devastating argument against foundationalism. He offered an internalist theory of justification that was not only in accord with our pre-philosophical intuitions about what justification involves but made non-inferential justification impossible to obtain. Instead of attacking the foundations of non-inferentially justified beliefs, BonJour instead focused on the

ceiling for such beliefs. Even if the foundationalist could stop the regress of inferentially justified beliefs by positing basic beliefs, the regress would still burst forth through the meta-levels of one's doxastic structure. Since foundationalists had no viable way of sealing off this meta-level regress, coherentism emerged as the only plausible theory about the structure of a rational belief system. I shall argue that Bonjour's argument begs the question by offering a theory of internalist justification that cannot be endorsed apart from a prior commitment to coherentism.

### **Danielle Eivins, *Spanish and Portuguese***

#### **Historical Fictionalization and Contemporary Re-Fictionalization: A multi-media work**

Brian Nissen, the implicit author of *El México de Egerton* by Mario Moya Palencia, is an interesting result of fictionalization. I summarize the antecedents for fictionalization of history in Latin American literature as a basis for understanding Moya Palencia's characterization of Nissen. Next, I establish Nissen's fundamental position within the novel in terms of the perspective he perpetuated of European travelers to Mexico. Finally, I argue that Nissen, in the novel, was no more than the alter-ego of Moya Palencia. As a visual artist, it seemed more appropriate for Nissen to express himself through painting. I enter the fictionalization process myself and create a series of paintings as Brian Nissen. I hope that the parallelism between this non-traditional body of work and the subject matter which it represents is evident and ultimately justified in terms of content and creativity.

### **Kate Elliott, *Art History***

#### **Promotional Painting: Robert Walter Weir's Landing of Henry Hudson**

Robert Walter Weir holds a strange position in American art history. Although quite successful in his own time, he is largely absent from contemporary scholarship. What is written portrays him as a strangely apolitical man. This characterization seems strange, especially in light of his military appointment as Instructor of Drawing at West Point Academy. Weir painted the subject of *The Landing of Henry Hudson* for the first time in the early 1830s. This canvas was created with the personal goal of self-promotion in mind. It was intended as a showpiece, a canvas to demonstrate his talent and his grand ambition. In it the young artist makes claim for a place within the American fine art tradition with a specific allusion to the most famous and successful American history painter to date, Benjamin West, by including a vignette from West's famous, *Penn's Treaty with the Indians* (1771-72).

### **Steven Fink, *Religious Studies***

#### **Of Humility and Hopefulness: Al-Ghazali's Conception of the Self**

According to the medieval Muslim theologian and philosopher al-Ghazali, a tremendous disparity exists between God and human beings. Recognition of this disparity shapes all components of al-Ghazali's thought, including his understanding of the self. This paper examines al-Ghazali's conception of the self, highlighting two key themes, humility and hopefulness, both of which arise in light of the disparity between God and the self. For al-Ghazali, consideration of this disparity requires that one views one's self with humility, since the self is shown to be greatly deficient when seen against the almighty God. At the same time, however, for al-Ghazali this almighty God is also a gracious God, who allows one to view one's self with hopefulness since this deficiency of the self may be overcome.

### **Crystal Gauger, *Art History***

#### **From the Esoteric to the Exoteric: Les Nabis and the Visual Link**

The collective mission of Les Nabis nourished their artistic activity for a decade. As the individual styles of each artist can be diverse, it can be challenging to see the consistency in their art until uncovering the metaphysical unity among the members. In January of 1889, at the age of 18, Maurice Denis wrote, "Lord we are only a few young fellows, devotees of the Symbol, misunderstood by the world, which mocks us: Mystics! Lord, I pray, may our reign come to pass." Denis' prayer was in large part fulfilled. The Symbolist quest for universalism led Les Nabis to a style of unconscious abstraction. Sérusier's concept of the autonomous existence of the painted image, the expressive potential of every line, shape, and colour on the picture surface successfully provided a bridge from the esoteric function of art to the exoteric.

### **Amber Griffioen, *Philosophy***

#### **Reasons/Motives Internalism and Problems of Irrationality**

What is a reason for action? What constitutes "having" a reason? Are reasons necessarily motivating? These questions play an important role in discussions of moral action and agency. However, in most inquiries into these questions, a further question tends to arise: What is the role of rationality in moral action? Indeed, having a reason to

x, seems to indicate some connection with rationality and the human ability to reason. In this paper, I will formulate an account of the part rationality plays in determining and being motivated by moral reasons. To do so, I will examine the distinction between epistemic and practical rationality, and discuss the relation between being rational/irrational and being morally praiseworthy/culpable. I will use Korsgaard's reflective endorsement theory of reasons, and will attempt to reconcile her reasons/motives internalism with the problems that arise when we begin to talk about particular cases of irrationality.

**Justus Hartzok, *History***

**Laughing At War Heroes: Humor and Social Response to the Chapaev Cult in Stalinist Russia**

During the turbulent industrialization years of the 1930s in Soviet Russia, the Stalinist state engineered an ad hoc system of rituals, symbols, stories, and images glorifying the Russian Civil War. Officials actively pursued the creation of a cult of heroes to be worshipped and admired by the Soviet population. One of the most popular of these heroes was the redoubtable Red Army commander Chapaev. Through literature, art, and film, Chapaev became a symbol of heroism and sacrifice for the Soviet population to emulate in order to build socialism. However, the unforeseen consequence of the Chapaev cult was the emergence of an equally powerful anti-myth promulgated by the people themselves. Through a variety of humorous anecdotes about Chapaev and his brothers-in-arms, Soviet citizens co-opted cult imagery to serve their own interests. This paper explores the elements of the Chapaev cult and its shadowy counterpart, examining how humor functioned as a mode of social commentary in Soviet society.

**PJ Johnston, *Religious Studies***

**Vasubandhu's Refutation of All Heresies**

This paper explores the role of polemic in the argumentation of the Indian Buddhist philosopher Vasubandhu, and whether polemic compromises the value of the work for readers today.

**Joyce Kelley, *English***

**"Nooks and Corners which I enjoy exploring": Investigating the Relationship Between Vita Sackville-West's Passenger to Teheran and Virginia Woolf's Writing**

In 1926, Vita Sackville-West presented Virginia Woolf with a travel narrative entitled *Passenger to Teheran*, a work begun from letters she had written to Woolf from Persia. While Woolf had previously been dismissive of Sackville-West's writing, something about this particular piece caught Woolf's interest, inspiring her to finish *To the Lighthouse* the following day. As Woolf was revising the form of the novel, Sackville-West was reinventing the form of the travel narrative, producing a curious amalgam of description and personal speculation which slips into modernism in its stream of consciousness approach. I suggest that this unusual and often overlooked piece of writing is key to understanding the literary relationship of these two women writers. After tracing the connections between travel writing and modernism, I explore the modernist, Woolf-inspired experiments at the heart of Sackville-West's text, then demonstrate the links between this work and Woolf's subsequent novels, *To the Lighthouse* (1927) and *Orlando* (1928).

**Calvin Lane, *Religious Studies***

**Sign and Signified: The Eucharistic Theology of Berengar of Tours**

The sacrament of Holy Communion, the re-enactment of Christ's last supper is and always has been the center point of Christian worship. While this much is clear, the nature of the Eucharist is far more opaque. Historians often cite Martin Luther and other early modern reformers as the thinkers who first critically examined what Christians mean when they profess the bread and wine of the Eucharist as the body and blood of Jesus. Centuries before the Reformation, a charismatic teacher in north-central France questioned the dominant belief that the elements were in fact the physical substance of Christ himself. By giving due weight to the reintroduction of Aristotelian understandings of the universe in the high Middle Ages, this paper, though relatively brief, will seek a fresh portrayal of the Eucharistic theology of Berengar of Tours.

**Peter LeGrant, *Philosophy***

**Nietzsche's Approaches to Prehistory in the Genealogy of Morals**

In *Genealogy of Morals*, Nietzsche takes three general approaches to reconstructing the prehistory of morals that are plausible when these approaches are combined. These approaches are sufficiently plausible, in that they give us no reason to reject further inquiry into Nietzsche's claims about the roots of our morals. In the first strategy, he sees

himself as giving an argument to the best explanation. In the second approach, introspection can yield clues about the prehistory. In the third approach, Nietzsche also takes his explanation as having empirical evidence to support it. My claim is that my reading of his account of prehistory bolsters it and defends it against the objection that it is merely a fictional tool designed to get his readers to question the foundations of their moralities.

**Heather Libby, *Philosophy***

**Does It Matter if Moral Facts are Explanatorily Powerful? A Case Against Explanatory Arguments, Offered as Reassurance to the Realist**

Gilbert Harman's 1977 piece "Ethics and Observation" has had lasting impact on the field of moral philosophy, though it is my contention that the attention given to it has been misguided. The objection against moral realism put forth by Harman has been labeled the argument from explanatory impotence. In this essay I plan to outline this argument and consider its merits. Ultimately, I hope to make it clear that those sympathetic to moral realism need not be particularly worried about this objection and ought to instead turn their attention to more serious threats to their position.

**Li Jun Liu, *Art & Art History***

**Girls Have a Penis, Boys Have a Vagina: Photographic Transcendence in Claude Cahun's Self-Portrait of 1928**

Since the advent of feminist criticism in the 1970s and queer theory in the 1980s, Surrealist photographer Claude Cahun's work has become a popular model in challenging conventions of gender and identity. Her images detonate the principles of the self and gender as fixed states. Her 1928 self-portrait professes that she has neither an identity or a gender; in the image, Cahun plays a dressed-up man in a checkered suit, her hair in a sharp crew cut, with an awkwardly bulbous ring on her pinky finger. The eclipsing of both identity and gender lurks not only in her artistic and literary oeuvre, but also in her personal life. As Cahun's primary medium, photography emerged as a gateway to transcending, or relinquishing, her own self and gender. These photographs at once expose these two categories as culturally constructed and served as evidence for Cahun's visionary and fantastic world.

**Allison McGuffie, *Film Studies***

**Playing an Ironic Game: The Discursive Significance of Angelina Jolie and Megan Mullally's Evasive Language**

The discourse surrounding "bisexuality" is largely lacking in depth and complexity of understanding, particularly regarding the ironic use of language demonstrated by individuals seeking to evade regulated hetero- and homonormative discourses. Using Butler's theory of performativity, Foucault's post-structuralist critique of sexual identity, and Richard Rorty's understanding of irony, this paper explores with greater depth the tactics often employed by individuals in their effort to evade the label bisexual. To enunciate the irony inherent in this game of evasion, this paper analyzes popular discussions by and surrounding female celebrities, such as Angelina Jolie and Megan Mullally. By speaking of their sexualities with an active, always-changing vocabulary, they self-consciously resist regulated discourse, continually changing the geography of (in)visible (bi)sexuality. This paper further argues that the assertion of self-consciously contingent final vocabularies successfully evades a conclusion to the game, thereby enabling that very game to continue.

**Cinda Nofziger, *American Studies***

**Picturing the Tourist: Photographic Representations of Women in *Holiday*, 1946-1949**

This paper examines *Holiday* magazine's photographic portrayal of tourists from 1946-1949, the magazine's first three years of publication. I focus particularly on the depiction of women as tourists, identifying the connections between the content of the photographs and wider social and cultural discourses about women's participation in consumption, leisure and travel in the years immediately following World War II. I demonstrate that through its photographs and their associated articles, *Holiday* initially presented an ambiguous and contradictory picture of tourists. While it encouraged women to take on new freedoms, it simultaneously prescribed their behavior as tourists and consumers. This reflected an ambiguity in American society regarding the expansion of the tourist class, the place of leisure, and especially, the participation of women at leisure. Ultimately, I argue that *Holiday* visually marks the cultural debates over the identity of women and tourists in the wake of World War II.

**Maria Ortiz**, *Spanish and Portugese*

**Cleansing the Savannahs from Tigers, Snakes and Indians: The Llanero Frontier in The Vortex of Jose Eustasio Rivera.**

I examine in the famous novel *The Vortex* (1924) of the Colombian writer Jose Eustasio Rivera the depiction of intercultural conflicts between cattle ranchers and Indians in the vast tropical plains so-called llanos from Colombia and Venezuela. The history of this conflict was elaborated in and transmitted through the oral tradition of the cattle ranchers or llaneros. I argue that in his novel, Rivera follows and subtly validates these traditions that portrayed the Indians as underdeveloped human animals, justifying their extermination. I relate the lack of criticism of the novel towards racism and genocide in the llanero culture with the situation of the Indians of remote regions within the Colombian nation-state of that time, where they were legally declared savages. This paper seeks to remedy previous critics dismissal of Rivera's novel's importance in exposing llanero s culture and the genocide of the natives.

**Robert Ostheimer**, *American Studies*

**I'm invulnerable to damage, theft or things bouncing off a superhero's chest within 90 days of purchase: Jewish Identity in the Superman/Seinfeld/American Express Web Advertisements**

In March of 2004 as a follow-up to a couple of commercials that debuted during the 1998 NFL playoffs, American Express announced the reunion of Superman and Jerry Seinfeld, Jerry Seinfeld and Superman have once again joined forces with American Express to create an action-packed, sidesplitting webisode that chronicles the daily exploits and unique friendship between comedian and Kryptonian. The five minute long commercials were written by Jerry Seinfeld and directed by the acclaimed Barry Levinson and described as, a humorous glimpse into the-day-in-the-life of pop culture's latest odd couple. In these webisodes, Jerry and Superman appear in typical Seinfeld-like circumstances, at a diner, walking down a street in New York City, etc. Jerry restricts Superman from using certain superpowers; thus, as the two run into trouble, Superman is either rendered helpless or somehow muddles the situation by using his superpowers. In each webisode, Jerry using an American Express card, not Superman, is able to save the day. In this paper, I argue that both Jerry Siegel and Joe Shuster's Superman and Jerry of NBC s sitcom Seinfeld represent Jewish identity with ambivalence, although in disparate ways. I will engage in close analysis of the two webisodes to see how the integration of Jerry and Superman connects, influences, and complicates each pop culture icon s relationship to their identification as what David Biale calls a doubly marginal minority in America.

**Dana Quartana**, *History*

**We can keep our hats on and chew all we want: Male Camaraderie in Delinquency Prevention in Chicago during the 1930s**

The Chicago Area Project became the dominant program in the field of delinquency prevention in Chicago during the 1930s. This paper discusses a central reason for its success, the ability of staff members to cultivate a camaraderie with the boys who participated in the CAP. Staff interacted with boys without reference to traditional notions of propriety or morality, allowing them to swear, smoke, and gamble without reprimand. The relationships that developed were relaxed and permissive, a type particularly appealing to boys already dabbling in delinquent behavior. The use of male camaraderie as a method of delinquency prevention proved to be effective, but it was not without its consequences. The CAP marginalized the participation of girls in its programs while undermining the authority of the women reformers who had created the field during the 1910s. This paper concludes, then, that the CAP found its success and failure in terms of gender.

**Sean Scanlan**, *English*

**Edith Wharton's "The House of Mirth": Homesickness and Literary Nostalgia**

My paper reexamines Edith Wharton's "The House of Mirth" to see how a changing city (New York) and a changing population negotiate home as both a place and an idea. I find evidence of a sort of homesickness in this narrative that shows the impossibility of homecoming. What I am particularly interested in is how character memory of home, character experience of place, and the narrator s control of character memory and movement offer a searching response to a new urban reality, a reality in which the shape of housing in New York changed due to immigrants and migrants who sought out new homes.

**Karen Smith, *American Studies***

**Cultivating Resonance: The Dissemination of the Quilts of Gee's Bend**

When the Whitney hosted the The Quilts of Gee's Bend in 2002, critic Michael Kimmelman asserted that the quilts are some of the most miraculous works of modern art America has produced. The quilts formal qualities echo the aesthetics of modern art, and are undoubtedly a large part of the appeal for Kimmelman and others. However, all accounts of the exhibition also include the stories behind the quilts, the quiltmakers, and their rural community. In this paper, I decipher the complicated relationships among the Gee's Bend quilts, the quiltmakers, and Tinwood Alliance, the legal corporation that promotes them. I demonstrate the ways that cultural institutions employ stories, histories, and cultural analyses to cultivate a sense of resonance. Finally, I argue that this resonance expands the cultural and aesthetic boundaries of the quilts, and allows Tinwood to successfully market a seemingly endless array of Gee's Bend quilt products.

**Justin St. Clair, *English***

**Jacques de Vaucanson, Gadgeteer (or, Notes Toward a Cultural History of the Player Piano)**

Despite being one of the dominant musical technologies of the early twentieth century, the player piano is often overlooked as a site for cultural studies research. In this paper, I suggest a need for a cultural history specifically devoted to the player piano by examining the figure of Jacques de Vaucanson (1709-1782), a man rarely associated with the pianoforte, whose work, nonetheless, directly prefigured and contributed to the development of the player piano. Ultimately, I argue that Vaucanson should be regarded as a progenitor of the player piano for the following reasons: he was a pioneer in the field of mechanized entertainment, he was the first to investigate the realm of musical hypervirtuosity, he constructed the first automaton able to play a human musical instrument, and he developed several mechanical components (including a forerunner of the paper piano roll) that were later incorporated into the player piano.

**Karla Stevenson, *Communication Studies***

**Legitimizing Isocrates: An Examination of Phronesis' Role in Deliberative Democracy**

Most scholars agree consistency is a key component for any legitimate philosophy. This poses a problem for those who argue that Isocrates is a philosopher, rather than a second-rate sophist with a conscience. This paper continues scholarly inquiry regarding Isocrates and attempts to reposition him as a philosopher. In response to scholars, including Katherine Morgan and Michael Leff, I respond to critiques regarding Isocrates lack of consistency and illegitimacy. Establishing criteria and standards will help secure his place as a legitimate philosopher and a creator of a unique philosophical and rhetorical school. This paper demonstrates that these issues are resolved if flexibility, rather than inconsistency, is viewed as a strength rather than a weakness. An examination of phronesis, or practical wisdom, allows rhetorical critics and philosophers to reconstruct a framework of deliberative democracy that combines platonic and sophistic ideals, enabling his methods to operate as a philosophy and a material rhetoric.

**Matt Thomas, *American Studies***

**The Contemporary Disability Film: A Semantic/Syntactic Approach**

Contemporary films are full of characters with disabilities. From *My Left Foot* (1989) to *Million Dollar Baby* (2004), cinematic representations of disability have increasingly been the subject of scholarly scrutiny. But films with characters with disabilities have infrequently been studied as if they belonged to a distinct genre, though I submit that it might useful to do precisely that. In other words, is there such a thing as a disability film genre? And what do we learn if we say there is? In an attempt to answer these two questions, this paper borrows Rick Altman's semantic/syntactic approach to film genre to explore how contemporary disability films are not only semantically similar in that they contain characters with obvious disabilities, but also syntactically similar in that they fail to reflect the minority model of disability. It then, informed by the political/activist stance of disability studies, ponders the implications of this failure.

**Andria Timmer, *Anthropology***

**Teaching the "Unteachable": Educational Reform for the Hungarian Roma**

Drawing from research conducted with several Hungarian organizations, this paper examines the activities of local and national organizations in their efforts to provide educational opportunities for Roma (or Gypsy) children. The Roma are the largest minority in Hungary and are widely recognized as the most impoverished and stigmatized group. Historically, Roma children were sent to schools for the mentally challenged. If they were able to receive

standard education, they were isolated in segregated schools or classrooms. Roma are often labeled as mentally or socially handicapped and unteachable. However, the enhancement of living standards including improvements in education for Roma has become a priority since Hungary joined the European Union in May 2004, and February 2, 2005 launched the Decade of Roma Inclusion. I discuss how these organizations are working to aid the Roma children in the Decade and how their activities challenge the dominant perception of this population.

**Amy Eli Trautwein, *Philosophy***

**The Path From Event to "I Remember When"**

A common conception of correctly remembering an event is that one accesses the stored memory of the original experience. The possible permutations on the path from original experience to eventual remembering are in fact far more complex. This paper examines the range of ways in which even an accurate description of the past event can fail to fit the model of correct remembering as a re-evocation of the original experience. Issues such as remembering iterations of the memory, ex post facto judgments of the event, and the variety of ways in which memories can resemble or differ from the past event are discussed. It is argued that it is unsatisfactory to conceive of veridical remembering in terms of accurate description of the event in question because of the plethora of ways in which one could inappropriately arrive at that description.

**Ashot Vardanyan, *Teaching and Learning***

**Birds of a Feather...Don't Flock Together. Josip vs Joseph**

Several features of the former communist system, including discords between the countries, rouse an unfeigned interest among Americans. The relations were interesting for us former Soviet people, too. It is natural: the propaganda trumpeted about the unanimity of opinions between our states. Therefore, we were curious about the revolts in East Germany, Hungary, Czechoslovakia, Poland, about the more advantageous way of farming in Bulgaria, about Rumania's disagreement in the affairs on Israel, Olympic games-84 in Los Angeles, etc. However, those were the "magnificent seven" of the most Marxist-Leninist countries. Yet, there was one more country that considered itself as a communist power, too: Yugoslavia. It is not a secret that it was really different. In the presented research, I try to provide a brief analysis of the reasons for alienation of that country from the socialist camp that happened due to the whim of two dictators Joseph Stalin and Josip Tito.

**Marshall Willman, *Philosophy***

**Wittgenstein on Seeing and Believing**

There are times when it is reasonable to ask whether or not the concept of "believing" overlaps with that of "seeing" or other concepts purporting to characterize mental states. The problem with "believing" and "seeing" is that it is not even clear what is being compared, or what a proper analysis of the terms 'believing' and 'seeing' might amount to. This paper proposes an analysis of these terms by appeal to socio-linguistic contexts, on the basis of a method of analysis originally pioneered by the philosopher Ludwig Wittgenstein.

**George Wrisley, *Philosophy***

**Realism, Putnam, and Multiple Descriptions of the World**

Understanding the main point of contention between realism and antirealism to be the degree to which reality is what it is independently of how we represent it, this paper is an attempt to specify in what way the realist can endorse the notion of different descriptions of the world. Putnam ultimately claims that what there is - what objects, properties, and relations the world consists of - is conceptual-scheme-relative. His way of understanding this has the implication that a plurality of conceptual schemes means that there can be more than one true and complete description of the world and thus more than one complete set of "facts." However, his argument for this has potentially insurmountable difficulties due to its appeal to incompatible but equally true descriptions. I defend a realist-friendly version of multiple descriptions, look at Putnam's argument for conceptual relativism, and end by emphasizing that argument's difficulties.

**Bei Yang, *Second Language Acquisition (FLARE)***

**Are Two General Classifiers Unstable in Shanghai Wu Dialect?**

Classifier systems typically have a single general, default classifier in Chinese dialects. But Shanghai Wu dialect, which is a Chinese dialect, has two: 'ge' and 'tsa'. Both general classifiers are used for nouns (e.g. wheel) which, do not take a sortal classifier such as 'tiao' (elongated), and as a general substitute for sortal classifiers. Use of two

general classifiers appears to be a widespread central and southern dialect pattern, also occurring in Changsha Xiang, Nanchang Gan, and especially in Hakka. Although Mandarin and literate influence might some day cause 'ge' to displace 'tsa', this study explores the historical development of the two general classifiers in Shanghai Wu dialect, and shows that the two have long been in stable co-existence, with possible traces of a human/non-human agreement system.

# Mathematical and Physical Sciences and Engineering Division

**Elif Albayrak, *Astronomy and Physics***

## **SLHC Detector Upgrade R&D Studies for CMS Hadron Calorimeter**

LHC Detector Upgrade R&D Studies for CMS Hadron Calorimeter The University of Iowa is one of the institutes that participate in the CMS (Compact Muon Solenoid) experiment of the LHC (Large Hadron Collider) project at CERN (European Organization for Nuclear Research), in Geneva, Switzerland. The LHC is a proton-proton collider that is designed to provide a beam energy of 7 TeV and a luminosity of  $L = 1034 \text{ cm}^{-2} \text{ s}^{-1}$ . Although the LHC is going to start running on summer of 2007, the future upgrade scenarios which include increasing the luminosity to  $L = 1035 \text{ cm}^{-2} \text{ s}^{-1}$  are being studied. We refer to this upgraded LHC as the SuperLHC (SLHC). An increase in luminosity would require some upgrades to the CMS detector as well because of the very high radiation environment that would be created. In this report we summarize an ongoing R&D effort to upgrade the CMS Endcap Hadronic Calorimeter by replacing the scintillator tiles with quartz.

**Nicki Baman, *Biomedical Engineering***

## **Immunostimulatory microparticle cancer vaccines**

Injectable biodegradable polymeric particles are being considered as an approach for the sustained delivery of therapeutic agents to stimulate immunotherapeutic responses against cancers. Poly (lactic-co-glycolic acid) (PLGA) is an attractive polymer for microparticle preparation because it provides protection of antigenic proteins from immediate degradation and enables preferential uptake by APCs ensuring that both antigen and adjuvant are delivered to the same cell. The project consists of designing an injectable drug delivery system using PLGA as the carrier. The design consists of co-delivering ovalbumin (OVA) and CpG ODN to dendritic cells by entrapping them into PLGA microparticles. CpG functions as an effective adjuvant to antigens in producing strong immune responses against cancers. Our group has shown that co-delivering CpG with antigens in PLGA microparticles produce higher immune responses than delivering CpG or biodegradable microparticles alone. This data is necessary in further developing a delivery system that produces the maximum overall response.

**Jonglak Choi, *Chemistry***

## **Solvothermal Synthesis of Nanocrystalline Copper Nitride from Energetically Unstable Copper Azide Precursor**

Non-aqueous solvothermal chemical reactions have found extensive utility in the growth of inorganic non-oxide materials. This report describes the successful use of organic solvothermal environments to synthesize energetically unstable copper azide precursors that are then decomposed in situ to crystalline metastable copper nitride at temperatures below 200°C. A comparison of Cu<sub>3</sub>N products formed from non-polar (toluene) and coordinating (THF) solvents is described. The cubic Cu<sub>3</sub>N products are nanocrystalline with aggregated particle-like extended structures and were characterized by X-ray diffraction, electron microscopy, IR spectroscopy, and mass spectrometry. The thermal stability and composition of Cu<sub>3</sub>N was examined by thermogravimetric analysis and bulk elemental analysis. The particle surfaces contain bound residual solvent species that can be removed by heating. The poorly coordinating solvent, toluene, lead to a more crystalline product containing less residual organic content. Bench top reactions were performed to follow the temporal formation and decomposition of metal azide intermediates. These studies provided more detailed information on the progression of metal azide to metal nitride materials in a solvothermal environment.

**Warren Clarida, *Physics***

## **Geant4 Simulations for Quartz Plate Calorimeter Prototype**

Many of the current detection methods used for high energy nuclear physics (HEP) will not work in the high radiation environments that will be typical of future experiments. Specifically the scintillating materials currently used in high energy particle collider detectors (calorimeters) are not able to function properly if they undergo high levels of radiation. The University of Iowa HEP group has designed a prototype detector that uses quartz plates to replace the scintillating material. These plates detect high energy particles by capturing Cherenkov photons rather than photons created by scintillation. In this report we present the design properties, data analysis results from test beam experiments performed at the Fermi National Accelerator Laboratory, and object oriented computer simulations using the GEANT4 simulation package of this prototype calorimeter. The experiments measured the

energy resolution, signal collection uniformity across the quartz plates, and linearity of response with respect to beam energy for different beam types entering the calorimeter.

### **Birsen Donmez, *Industrial Engineering***

#### **Mitigating Driver Distraction by Providing Real Time Feedback based on Eye Glances**

Objectives: An experiment was conducted to assess if real time feedback on driver's state can alter driver's interaction with in-vehicle information systems (IVIS). Background: Previous studies have shown that in-vehicle tasks can undermine driver safety and there is a need to mitigate driver distraction. Method: An advising strategy, which alerts drivers if they are too distracted, was presented to 16 young and 12 middle-aged drivers in a driving simulator at two different locations in the vehicle. Results: Distraction was problematic for both age groups, as depicted by delayed responses to roadway events. With the advising strategy, regardless of its location, drivers looked at the in-vehicle display less frequently. No significant benefits were observed for braking and steering behavior. Conclusions: Real-time feedback on driver state can positively alter driver's engagement in distracting activities. Application: The advising strategy can be incorporated into existing IVIS to mitigate the effects of distractions.

### **Helen Fuller, *Biomedical Engineering***

#### **Evaluation of a rapid normalization method for use in ergonomics studies**

Electromyography (EMG) is a powerful tool for accessing the level of muscle activity in workers. One factor that limits its usefulness in the field is the lengthy normalization procedure necessary in order to compare muscle activity between subjects. Each muscle must be normalized separately. In field studies, most companies do not want workers to be absent from the assembly line for very long. A rapid normalization method would allow researchers to conduct more field studies. This project evaluated a proposed rapid normalization procedure and compared it to standard normalization procedures. The muscles examined with EMG in this study were the flexor digitorum superficialis, extensor digitorum, and upper trapezius. Twenty-five subjects performed the reference contractions for normalization using both methods. Linear regression and concordance correlation analyses were used to compare the methods. Rapid normalization was found to be a suitable substitute for some, but not all, muscles.

### **Ivan Georgiev, *Chemistry***

#### **Design and Construction of Supramolecular Complexes that Maintained their Reactivity in the Solid State**

There is increasing interest in utilizing organic molecules to position olefins, supramolecularly, for reaction in the solid state. The olefins are able to undergo [2+2] photodimerization stereospecifically as well as in high yields. In this study our attention focuses upon a metal-organic complex that directs the photoreaction in the solid state. Such templates may enable a means to combine the properties of metals with the organic solid-state reactivity. As a starting point we synthesized a dinuclear Zn(II) complex based on the ditopic Schiff base ligand [Zn<sub>2</sub>L<sub>2</sub>(OH)<sub>4</sub>]<sup>+</sup> (LH=2,6-bis[N-(2-pyridylethyl)formimidoyl]-4-methylphenol). The complex directs the photoreaction, involving trans-1,2-bis(4-pyridyl)ethylene in the cationic assembly [Zn<sub>2</sub>L<sub>2</sub>(OH)(4,4-bpe)<sub>2</sub>]<sup>4+</sup> by way of coordination driven self-assembly. We demonstrate that the reactivity is maintained within derivatives of such templates synthesized by attaching different functional groups to the peripheries and arms of the organic ligands. Currently we investigate how the reactivity is maintained in a single-crystal to single crystal photoreaction.

### **Yusuf Gunaydin, *Physics & Astronomy***

#### **K/π PRODUCTION AT THE MIPP(E907) EXPERIMENT**

The University of Iowa high energy physics group participates to the Main Injector Particle Production (MIPP) Experiment - E907, at Fermilab. The propose of the experiment is to measure hadronic particle production with particle identification in the Meson area using primary and secondary beams from the Main Injector. MIPP uses 120 GeV Main Injector Primary protons to produce secondary beams of π<sup>±</sup>, K<sup>±</sup>, p<sup>±</sup>. Among the various physics interests of the MIPP experiment the University of Iowa group is focusing on K/π production ratio with different nuclear targets. In this report we summarize the detector properties and the physics potential of the MIPP experiment and the status of the K/π production analysis done by the University of Iowa members on the data.

**Krishna Kalari, *Biomedical Engineering***

**Computer Aided Search to Identify Mutations in a Gene**

A variation or mutation in the genome can lead to serious diseases that may be passed on to the progeny. Mutations may be insertions, deletions or substitutions of one or more nucleotide base pairs or chromosome regions. Although high throughput methods exist to identify substitution mutations, no in-silico system exists to identify deletion or duplication candidate regions. Conventional assays to identify deletions/duplications are time consuming, laborious and expensive. We Designed and implemented a high-throughput computational system (SPeeDD) to identify genomic regions with possible deletion or duplication mutations. Results: Informative DNA based features were used with machine learning methods to prioritize likely candidates within a disease-causing gene. We obtained good sensitivity and specificity using our method, which enabled us to correctly classify 97% of the candidates. Conclusions: Our method to rank regions of deletion or duplication candidates is highly effective. It is expected to accelerate the process of mutation discovery and reduce biological assay costs.

**Syed Kazmi, *Mathematics***

**Internal Approximation of Obstacle Problems**

In this paper, we consider internal finite element solutions of obstacle problems. An optimal order error estimate is given for the internal solutions. Numerical results are presented showing the performance of the internal finite element methods and a comparison between the internal solutions and external solutions.

**Monica Lees, *Mechanical and Industrial Engineering***

**Collision Warnings and Driver Brake Response to Critical and Non-Critical Events**

Collision warning systems represent a promising technological solution to rear-end collisions. However, sensor systems are imperfect and may miss critical targets, generate false alarms in the absence of a critical target or may emit nuisance alarms based on radar reflections from roadside furniture. Algorithms may be inconsistent with the drivers assessment of driving situations thereby generating non-useful warnings. This study investigated the influence of different collision warning failures on brake response behavior using a medium fidelity driving simulator. Thirty-one drivers (15 males and 16 females) between 18 and 35 participated. Results indicate that false alarms and non-useful alarms differentially influence trust and reliance. Non-useful alarms promoted trust and reliance in multiple driving situations. Drivers relied on these systems even in the absence of contextual cues. False alarms led to distrust and a hesitant response to surprise events in which the source of the alarm could not be immediately verified.

**Giovanna Lloset, *Mathematics***

**The stable endomorphism group of non-simple string modules over a very particular finite dimensional algebra**

Let  $A$  be a finite dimensional algebra over an algebraic closed field  $k$  of characteristic 2 with a quiver representation and relations. Consider all non-simple string modules for this algebra which do not lie in the Auslander-Reiten component of the simple modules. Is there a non-simple string module  $M$  for which the group of stable endomorphisms is isomorphic to  $k$ ? Under the hypothesis above we were able to prove that the underlying string  $S$  of the string module  $M$  has a substring  $S'$  and there is an endomorphism that does not factor through a projective  $A$ -module and lies in  $S'$ . The maximum length of the underlying string of a string module needed for completing the study of all stable endomorphism groups of non-simple string modules was 17. In particular, the cases needed for complete generalization are 54.

**Pradeep Mandapaka, *Civil and Environmental Engineering***

**Estimation of Radar-Rainfall Error Spatial Covariance: A Simulation Study**

The National Weather Service's Next Generation Weather Radar (NEXRAD) program produces quantitative precipitation estimates at high spatial and temporal resolutions. However, several studies showed the presence of errors in the radar derived rainfall estimates and thus there is a need for statistical characterization of radar rainfall uncertainty. The study presents a theoretical framework for the development of a method to estimate the error spatial covariance using high-density rain gauge networks and high quality data. The method is analogous to the error variance separation that uses radar data at the rain gauge locations and accounts for gauge representativeness error. To assess the performance of the method, a Monte Carlo simulation experiment is carried out. The method is

implemented on simulated radar rainfall fields with known error spatial covariance and the results show that, for this testing set-up, the method performs very well in estimating the error spatial covariance.

### **Heather McDonald, *Civil and Environmental Engineering***

#### **Analysis Of Sulfide Inhibition In Anaerobic Biofilm Reactors Fed A Sulfate-Rich Wastewater**

Many industries produce wastewaters high in organic and sulfate content. Anaerobic treatment results in methane formation by methanogenic archaea (MA) and sulfide as sulfate reducing bacteria (SRB) reduce the sulfate. Sulfide can inhibit the activity of these organisms. Previous research has shown biofilm processes can withstand higher levels of sulfide than suspended growth systems. This advantage is not well understood. There have been no studies investigating the structure and composition of biofilms developed when treating sulfate wastewaters. Perhaps a better understanding of the spatial orientation of SRB and MA within the biofilm and along the length of the reactor will yield clues to this advantage. Biofilm reactors treating sulfate wastewater have been constructed and operated for over 600 days. Sulfate and carbon wastewater concentrations have been increased over time. Biofilm samples will be analyzed using molecular techniques and microscopy in order to determine how increasing sulfide levels affect the microorganisms.

### **Omer Mermer, *Physics and Astronomy***

#### **Novel Magnetic Field Sensor Based On Organic Light Emitting Diode And Its Touch Screen Applications**

We describe magnetic field sensors based on a recently discovered magnetoresistance (MR) effect in organic semiconductor sandwich devices. The effect reaches up to 10% in a small magnetic field of 10 mT at room temperature. We perform an extensive experimental characterization of this effect. This effect may find application as magnetic field sensors in organic light emitting diode interactive displays (patent pending).

### **Anthony Moeller, *Physics and Astronomy***

#### **Zero Degree Calorimeter for the CMS Experiment**

The University of Iowa is involved in the building of two nuclear particle detectors called Zero Degree Calorimeters (ZDCs) for the CMS (Compact Muon Solenoid) experiment of the LHC (Large Hadron Collider) project at the CERN laboratory in Geneva, Switzerland. When it goes online, the LHC will be the world's largest and most powerful nuclear particle accelerator. Although principally designed for measuring the spectator neutrons from heavy ion collisions, the ZDCs will also be useful for beam tuning and luminosity measurements, both for lead-lead and proton-proton collisions. Finally, the ZDCs will help CMS make complete energy flow measurements for Pb + Pb and pp collisions. In this presentation we summarize the design of the ZDCs and the computer simulations used for optimizing detector efficiency.

### **Sujith Perera, *Chemistry***

#### **Synthesis of Photocatalytic Active Nanocrystalline Rutile and Anatase TiO<sub>2</sub>**

Nanocrystalline titanium dioxide is conventionally produced by aqueous precipitation reactions, followed by annealing post-treatment, which can also cause structural conversions from the photocatalytically active anatase to rutile phases. Solvent-free exothermic solid-state metathesis (SSM) reactions have shown wide utility in the synthesis of binary solids. This paper describes the application of the SSM method for the synthesis of TiO<sub>2</sub> from TiCl<sub>3</sub> and Na<sub>2</sub>O<sub>2</sub>. The use of an insulating crucible and simply addition of NaCl heat sink to this rapid and exothermic SSM led to improved product crystallinity and increases in anatase to rutile TiO<sub>2</sub> phase content. Small particle size products were synthesized at high salt dilution levels. The photocatalytic active of SSM synthesized TiO<sub>2</sub> powders containing some anatase TiO<sub>2</sub> were comparable to a commercial TiO<sub>2</sub> standard, even though the SSM powders had 30-50% lower surface areas.

### **Imran Pirwani, *Computer Science***

#### **Extending the Life of Wireless Networks**

Using a dominating set as a coordinator in wireless networks has been proposed in many papers as an energy conservation technique. Since the nodes in a dominating set have the extra burden of coordination, energy resources in such nodes will drain out more quickly than in other nodes. To maximize the lifetime of nodes in the network, it has been proposed that the role of coordinators be rotated among the nodes in the network. One abstraction that has been considered for the problem of picking a collection of coordinators and cycling through them, is the domatic

partition problem. In this paper, we propose a strategy to compute domatic partitions in a distributed setting under two assumptions. Our algorithms run in time  $O(1)$  and  $O(\log^{(*)}n)$  time, respectively.

**Anatoliy Sokolov**, *Chemistry*

**Enforced Face-to-Face Stacking of Organic Semiconductor Building Blocks within Hydrogen-Bonded Molecular Co-Crystals**

A method to enforce face-to-face stacking of the aromatic rings of organic semiconductor molecules in the solid state that employs bifunctional hydrogen-bond donors, in the form of semiconductor co-crystal formers (SCCFs), to align semiconductor building blocks (SBBs) is reported.

**Srinivas Tadepalli**, *Mechanical Engineering*

**Collagen Fiber Remodeling in Anisotropic Tissue Membrane**

Soft tissues respond to mechanical load not only by deformation but also by growth and remodeling. It has been reported that when harvested native heart valve tissues are subjected to transverse pressure for fixation, the angular distribution of the fibers evolve, and substantial structural change takes place. An issue in the prosthetic heart valve design is to select the proper fixation pressure and process that will result in desired fiber direction. It is essential to understand the evolution of the fiber architecture particularly the interaction between mechanical load and remodeling. In the present paper a mathematical formulation is described for modeling the fiber reorientation in order to understand the interaction between fiber structure and mechanical loading conditions in soft tissue. To assess the performance of this model described 2D and 3D numerical simulations are carried out.

**Soumik Ukil**, *Biomedical Engineering*

**Automatic segmentation of pulmonary fissures in X-ray CT images using anatomic guidance**

The pulmonary lobes are the five distinct anatomic divisions of the human lungs. The physical boundaries between the lobes are called the lobar fissures. Detection of lobar fissure positions in pulmonary X-ray CT images is of increasing interest for the early detection of pathologies, and also for the regional functional analysis of the lungs. We have developed a two-step automatic method for the accurate segmentation of the three pulmonary fissures. In the first step, an approximation of the actual fissure locations is made using a 3-D watershed transform on the distance map of the segmented vasculature. Information from the anatomically labeled human airway tree is used to guide the watershed segmentation. These approximate fissure boundaries are then used to define the region of interest (ROI) for a more exact 3-D graph search to locate the fissures. Within the ROI the fissures are enhanced by computing a ridgeness measure, and this is used as the cost function for the graph search. The fissures are detected as the optimal surface within the graph defined by the cost function, which is computed by transforming the problem to the problem of finding a minimum s-t cut on a derived graph. The accuracy of the lobar borders is assessed by comparing the automatic results to manually traced lobe segments. The RMS distance error between manually traced and computed detected left oblique, right oblique and right horizontal fissures is 3.2(+/- 1.1) mm, 3.5(+/- 1.1) mm and 1.4(+/- 0.2) mm, respectively.

**Sarah Vigmostad**, *Biomedical Engineering*

**A Sharp Interface Fluid-Structure Interaction Model for a Bioprosthetic Heart Valve**

In order to better understand the failure of bioprosthetic heart valves, a fully dynamic simulation of the valve throughout the cardiac cycle is necessary. Computation of blood flow interacting with a bioprosthetic heart valve leaflet requires a fluid-structure interaction model capable of handling complex geometries and rapid valve deformation. A sharp interface, Cartesian grid method is presented which accurately computes the flow of blood around a heart valve leaflet. A finite element solver calculates the leaflet deformation and stresses based on the conditions of surrounding fluid. The coupling of fluid and leaflet motion and stress is performed using a fluid-structure interaction model. By coupling the motion and stresses in the fluid with those of the valve, an accurate solution is obtained which will prove invaluable in the understanding of bioprosthetic valve failure.

**Alfredo Villanueva**, *Mathematics*

**Procedure of Prolongation in a Systematic Manner for an Overdetermined System**

Traditionally the method of prolongations is carry out by algebraic manipulations which become very complex, especially in cases of partial differential equations on curved spaces, here we are applying some results from

representation theory and differential operators to have a systematic method that allow us to close some overdetermined systems on spaces with curvature.

**Gabriele Villarini, *Civil and Environmental Engineering***

**Empirical Characterization of Radar Rainfall Uncertainties: Preliminary Results**

It is well-acknowledged that operational precipitation estimates produced by U.S. national network of WSR-88D radars are affected by several sources of uncertainties. A comprehensive quantitative evaluation of these errors has not yet been achieved. To fill this gap, the authors develop a model for the quantitative description of radar rainfall errors. This model is empirically based and characterized by two elements: a deterministic distortion function and a random component. These functions are estimated using a nonparametric framework and rain gauge measurements are used as approximation of the true rainfall. The obtained results are based on a six-year sample of Level II data from the Oklahoma City radar site (KTLX). The radar data are complemented with corresponding rain gauge data from the Oklahoma Mesonet and Agricultural Research Service Micronet.

**Timothy White, *Chemical and Biochemical Engineering***

**The Influence of Thiol-ene Polymer Evolution on the Formation and Performance of Holographic Polymer Dispersed Liquid Crystals**

Holographic polymer dispersed liquid crystals (HPDLCs) are a liquid crystal (LC) material whose wavelength selective diffraction can be turned on and off in microseconds making them widely applicable in optical and photonic devices. Recently, switching polymer chemistry from acrylate to thiol-ene has significantly improved HPDLC performance in a number of parameters. The influence of polymerization kinetics and monomer functionality in the formation of thiol-ene based HPDLCs is examined. Increasing the polymerization rate through laser intensity or through monomer functionality/composition significantly improves the diffraction efficiency (DE) of HPDLCs. In samples with similar polymerization rate, delaying the gel point to higher monomer conversion results in greater LC phase separation, also resulting in higher DE. The influence of polymerization kinetics is evident in comparison of the polymer/LC morphology of samples containing rate enhancing monomers. Increasing the polymerization rate by adding rate enhancing monomers decreases liquid crystal droplet size subsequently increasing HPDLC baseline transmission.

**Qingyu Yang, *Industrial Engineering***

**Reliability of Two-Stage Weighted-k-out-of-n Systems with Components In Common**

This paper extends the existing one-stage weighted-k-out-of-n model to two-stage weighted-k-out-of-n models with components in common. The model properties are investigated. Algorithms are developed to calculate the system reliability and generate the minimal cuts and minimal paths of two-stage weighted-k-out-of-n systems. Two types of two-stage weighted-k-out-of-n models, the SW-k-out-of-n model and the PW-k-out-of-n model, can be applied to investigate reliability issues in network applications such as the project management and the shortest path problems.

**Weixuan Yang, *Mechanical and Industrial Engineering***

**Temperature-Related Cauchy-Born Rule for Multiscale Modeling of Crystalline Solids**

In this study, we develop a temperature-related Cauchy-Born (TCB) rule for multiscale modeling of crystalline solids based on the assumptions that deformation is locally homogeneous and atoms have the same local vibration mode. When employing the TCB rule in the nanoscale continuum approximation, the first Piola-Kirchhoff stress can be explicitly computed as the first derivative of the Helmholtz free energy density to the deformation gradient. Since the Helmholtz free energy is temperature-dependent, multiscale methods consisting of the TCB rule embedded continuum model can be used to elucidate temperature-related physical phenomena at the nanoscale. Stress analyses of canonical ensembles verify the continuum approximation with the TCB rule by comparing the calculated Cauchy stresses with the outcomes of molecular dynamics simulations. As an application of the TCB rule in multiscale modeling, the nanoscale meshfree particle method with the TCB rule demonstrates the same crack propagation phenomenon in a nanoplate as molecular dynamics. This example shows that the temperature effects are significant on the crack propagation speed when the temperature is in a particular range.

## Social Sciences and Education Division

**Angela Borsella**, *Communication Studies*

**Parent-Child Alliance Coding Inventory**

Abstract Unavailable

**Rebecca Brock**, *Psychology*

**Adequacy of Spousal Support Explains the Link between Chronic Stress and Marital Satisfaction**

To expand our understanding of stress spillover in marriage, I examined the role of spousal support adequacy in the link between chronic stress and marital satisfaction. Newlywed husbands and wives (n = 93 couples) reported on chronic stress in their daily lives, adequacy of support received from their spouses, and global marital satisfaction. Adequacy of spousal support buffered the negative effects of chronic stress on marital satisfaction for husbands, but not for wives. Specifically, adequate levels of instrumental and tangible support buffered the effects of husbands stress on marital satisfaction. Implications of findings and suggestions for future research are discussed.

**Robin Barry**, *Psychology*

**Assessing Disengagement in Romantic Relationships**

Research examining the mechanisms through which initially satisfied couples become distressed highlights the importance of progressive emotional, cognitive, and behavioral disengagement from one's partner and/or one's relationship. However, existing measures do not assess disengagement independently from positive and/or negative relationship affect and behaviors. The purpose of the present study was to develop a self-report, paper and pencil questionnaire assessing emotional, cognitive and behavioral disengagement in intimate relationships. Exploratory factor analyses were conducted on an item pool written to reflect the comprehensive conceptualization of disengagement represented in the close relationships literature. The measure was validated on a sample of 412 individuals in ongoing romantic relationships. Analyses supported the external, divergent and incremental validity of the scale. Implications for the enhancement of theoretical models and intervention efforts are discussed.

**Chuan-hsien Chang**, *Political Science*

**Politics of Defection: Reinvestigating Influence of Electoral System over Party System**

Previous research on political defection focuses on case studies but argues that system-level contexts such as electoral factors induce dissenting legislators to defect from their parties. To precisely examine whether and how electoral factors influence the solidity of political parties, in this research, I use the number of defectors in elections as the dependent variable to measure the fluidity of party systems and to construct a cross-national dataset. Furthermore, I use Carey and Shugart's (1995) configurations as endogenous factors, combining with exogenous factors such as political corruption, the effective number of parties in government coalition, social fractionalization and governments' economic performance as independent variables. Statistical results show that both the endogenous and exogenous factors influence the frequency of electoral defection separately. However, once we combine these factors together, the variables measuring political corruption and the impact of interparty relations outweigh the others.

**Chia-Hui Chiu**, *Teaching and Learning*

**The Acquisition of Word Meanings in a Second Language**

The most commonly accepted view of acquisition of word meanings is that it occurs along a developmental continuum. However, there seems to be a tendency to disregard the complexity of this process in second language (L2) learning/teaching. Jiang (2000) proposed a three-stage model of acquisition of word meanings in L2-- Stage 1 where L2 lexical entries are directly linked to the L1 translations; Stage 2 where the word meaning specifications of the L1 counterparts are copied into the L2 lexical entries and mediate L2 word use; and Stage 3 where the word meaning specifications unique to L2 words dominate L2 entries. The present study tests this model by examining the mental processes of L2 learners at different levels of proficiency, using a retrospective think-aloud interview after they completed a vocabulary test. Results from a preliminary study suggest that Stage 3, while difficult to reach, is not an impossible mission.

**Dana Figlock**, *Psychology*

**Socio-Contextual Study of College Student Drinking: 1983-2000**

The purpose of this study was to consider how the distinctive history and characteristics of a campus contribute to a drinking climate. Legal, social, and environmental changes in Iowa City from 1983-2000 were reviewed and examined for potential effects on college student drinking. Iowa City and campus police records of alcohol related violations were used to approximate student drinking. Correlational analyses indicated that public intoxication, liquor law, and operating a vehicle while intoxicated violations increase when more alcohol establishments are present, but are unaffected by alcohol advertisements, changes in minimum legal drinking age, privatization of alcohol sales. Results suggest that college student binge drinking prevention efforts should focus on limiting the number of establishments permitted to serve alcohol in areas near campus.

**Zana Friganovic**, *International Studies*

**Proof of Identification: the Persistence of Yugoslav National Sentiment**

In this paper I discuss the emergence of national identities following the disintegration of the Socialist Federative Republic of Yugoslavia. I illustrate these still-disputed identities by means of interviews with refugees from the former Yugoslav republic of Bosnia and Herzegovina who now live in the United States, Denmark, and Croatia. The data from these interviews suggest that former citizens of Yugoslavia are creating national identities that are independent of the definitions promulgated by the five newly-independent countries that broke away from Yugoslavia in the 1990s. Still present among these alternative identities is the supra-national identity Yugoslav, the persistence of which indicates it is still perceived as a legitimate self-identification.

**Jessica Horst**, *Psychology*

**Fast Mapping But Not Fast Word Learning: Referent Selection Without Retention**

Two experiments explored the processes that support fast mapping by examining the relationship between referent selection and retention. Two-year-old children were presented with several novel names during a referent selection task that included both familiar and novel objects. After a five-minute delay, children were tested on their retention of the novel name-object mappings. Across experiments, children were excellent at referent selection, but very poor at retention. Children were only able to retain up to four novel names and only when referent selection was augmented with ostensive definition. The results thus support the proposal that finding the referent of a novel name is not the same as learning a new word, and point towards the need for increased understanding of the role of general cognitive processes in word learning.

**Hoi-ok Jeong**, *Political Science*

**Popular Presidents' Strategy Under Divided Government**

I argue that the growth of divided government influences the behavior of the president. My central contention is that under divided government, presidents will be less likely to "go public", and this strategic behavior is motivated by relatively high presidential popularity that presidents are blessed to enjoy during divided government. Divided government works to the advantage of presidents because the muddy information environment under divided government leads people to blame presidents less (Nicholson, Segura and Woods, 2002). As a result, presidents under divided government are more popular than under unified government. I argue that a high presidential approval rating under divided government serves as the strong leverage when bargaining with Congress and reduces demands for political activity. Therefore, popular presidents under divided government will have a weak motive to engage in activities intended to place the presidents and their policies before the American public. In sum, the interaction between the existence of divided government and presidential popularity decreases the likelihood that presidents will appeal to the public's support in dealing with Congress.

**Angela Kellogg**, *Counseling, Rehabilitation and Student Development*

**Exploring Critical Incidents in the Multiracial Identity of College Students**

Despite their growing numbers, little is known about multiracial college students. The purpose of the study was to explore how critical incidents have shaped multiracial students understanding of their racial identity. Using a phenomenological framework, I conducted a qualitative study at two higher education institutions in the Midwest. Fourteen multiracial students participated in interviews and focus groups. Results showed a broad range of critical incidents both in and out of class related to confronting race and racism; responding to external definitions; defending racial identity; and affirming racial identity. These incidents underscore the relational nature of identity,

and the ways in which daily incidents in the college context influence how students make meaning of what it means to be multiracial. Implications for higher education and future research are discussed.

**Yeon Kyeong Kim, *Journalism and Mass Communication***

**Framing Katrina in Black and White: News in the Chicago Defender and the Star Tribune**

When Hurricane Katrina struck, it stirred up the already fragile racial and class tension among blacks and whites. This exploratory research examines how the Chicago Defender and the Minneapolis Star Tribune web sites framed their local news coverage of Katrina. The Chicago Defender's staff coverage of Katrina had a minority perspective and framed hurricane victims as one of their family members, whereas the Star Tribune staff stories framed victims more like others. Slowness of the government and class and race issues received the most attention in the Defender; the Star Tribune only had two local articles criticizing the government and none devoted specifically to race and class issues. The Minneapolis paper highlighted the economic impact more than anger or criticism.

**Yifei Liu, *Social and Administrative Pharmacy***

**Self-efficacy and Perceived Difficulty in the Factor Structure of Perceived Behavioral Control**

Objective: To examine relationship of self-efficacy and perceived difficulty according to controllability. Methods: 1,000 osteoarthritis patients were randomly selected nationwide. A survey collected perceived difficulty, self-efficacy and controllability of drug information seeking from physicians, pharmacists and the internet. Principal component analyses with varimax rotation were conducted for each information source for self-efficacy and perceived difficulty items by extracting two factors. The factor loadings were assessed by the extent of controllability. For each information source, two-factor principal component analyses were performed for those who had a score > 4.0 on a 1 - 7 scale of controllability measurement and those ≤ 4.0. Results: The response rate was 61.9%. Self-efficacy and perceived difficulty loaded on two factors and the loadings were more differentiated for physicians > pharmacists > internet. The mean controllability ratings were health professionals > internet. About each information source, the loadings were more differentiated for controllability > 4.0 than controllability ≤ 4.0. Conclusions: Self-efficacy and perceived difficulty became different as controllability increased.

**Yayuk Mardiaty, *College of Education***

**Developing Democratic and Historical Thinking Through Music Instruction: Gamelan and Javanese History as a Case Study**

This study examines Gamelan music's potential to develop Javanese (Indonesia) students' historical thinking skills and understanding of democratic values. The targeted population involved 42 twelve-grade students (III IPS4) in SMA I Trenggalek, East Java, Indonesia. The integration of Gamelan music with history enables students to develop intertwined historical and democratic thinking skills. Implementation (intervention) of a unit plan with visual items enabled students to enlarge their understanding the history of Gamelan music as part of the cultural history of Java and developed their historical thinking skills. Implementation of audio representation also enabled students to define, explore, and explain Gamelan structure and sound in relation to both Javanese cultural values and democratic values. A field trip to Borobudur and Prambanan temples encouraged students to simulate the work of professional historians who actively engage and learn through analysis an interpretation of various resources. In this part of the intervention students interviewed the tourist guide, the informants, observed the sites to identify patterns in the temples and analyzed Gamelan instruments depicted on the temple reliefs. They also wrote a research project based on the data gathered in groups. Finally, incorporation of first hand knowledge through playing of the Gamelan refined students' understanding of democratic values and practices through cooperative playing and of cooperative decision-making.

**Hannah Marsh and Joshua Polanski, *Anthropology***

**Knuckle-walkers unite: separating platigrade locomotors through talo-calcaneal facet morphology**

In light of the continuing debate over whether hominins passed through a knuckle-walking phase, it becomes imperative to investigate any morphological signatures that can discern knuckle-walking locomotion. Previous research into this question has focused on the wrist. Can ankle morphology also help identify knuckle-walking, a locomotion more commonly associated with the forelimb? Gebo (1992) compared ankle morphology of the living apes (*Pan*, *Gorilla*, *Pongo*, *Hyllobates*) and discovered six indices that separated the knuckle-walking great apes from the Asian apes. These differences are related to primate plantigrady, full plantar contact of the hind foot during locomotion, seen only in knuckle-walking apes and humans.

By selecting the indices that separate the knuckle-walkers from other apes, we investigate the ability of these indices to separate the two plantigrady groups, knuckle-walkers and bipeds, using talo-calcaneal measurements. Two of the indices present statistically significant differences between humans and the measurements of *Pan* and *Gorilla* within the areas of the subtalar joint and the talo-fibular facet. These indices relate to differences of weight transmission and joint stability in bipeds and quadrupeds, resulting from bipeds passing their weight through two limbs, and not four, as in apes.

Given that these indices do separate humans from their African ape relatives, talo-calcaneal morphology can serve as a powerful tool with which to investigate the origins of knuckle-walking in the fossil record. If extinct ape forms prior to the panin-hominin split show knuckle-walking indices, it is likely that the last common ancestor of chimpanzees and hominins knuckle-walked.

### **Michael Matthews, *Teaching and Learning***

#### **Mathematical Preparation of Preservice Elementary Teachers**

Several studies have documented serious deficiencies in the mathematical understanding of inservice elementary teachers (Galuzzo, Leali, & Loomis, 2000; Goulding, Rowland, & Barber, 2002; Ma, 1999; Stacey, Steinle, & Irwin, 2001). Recently national organizations such as the American Mathematical Society and the National Research Council have proposed university interventions to address this concern. This study analyzes the impact of such an intervention, a course titled Logic of Arithmetic, developed by the mathematics department of the University of Iowa. Compared to a control group, significant differences were found on content knowledge, and pedagogical content knowledge, but not on attitude toward mathematics.

### **Grant McCall, *Anthropology***

#### **Investigating the Origins of Modern Humans Using Lithic Datasets from Klasies River Mouth, South Africa**

This paper examines the evolution of modern humans in Southern Africa using archaeological data from Klasies River Mouth, South Africa. The paper uses multivariate statistical techniques to look for evidence for continuity between late Middle Stone Age and early Later Stone Age lithic technology. The paper finds that there is no evidence for continuity with later lithic technologies in Southern Africa, despite some superficial similarities. Instead, the adaptations in lithic technology seem to correlate with changing patterns of mobility and a dramatic period of environmental degradation between 125 and 75kya. This finding suggests a complex evolutionary history for anatomically modern humans in Africa, and that there was not one single revolutionary origin of our species. The evolution of anatomically modern humans and their patterns of behavior have a long development in Africa, which has not always been perceived because of an archaeological focus on the European Paleolithic.

### **Jill Moffett, *Women's Studies***

#### **Women and the War on Cancer: The Role of the Women's Field Army in Shaping Contemporary Breast Cancer Activism**

From 1937- 1946, hundreds of thousands of American women joined the Women's Field Army, and worked to disseminate information to the public about early detection and standard treatment for the disease. The WFA was a branch of the American Society of the Control of Cancer (now the American Cancer Society), and the ACS now says that More than anything else, it was the Women's Field Army that moved the Society to the forefront of voluntary health organizations. This paper examines the history of the WFA as a precursor of the contemporary breast cancer movement. Although feminist scholars often see organizations such as the National Breast Cancer Coalition (NBCC) as an outgrowth of the women's health movement of the 1960s and 70s, an examination of the WFA reveals that it the contemporary breast cancer movement is a clear descendent of this organization. The contemporary breast cancer movement has often been framed by feminist scholars as a feminist movement one that it focused on empowering women, giving voice to those who were previously without a voice, demystifying medical technologies, and taking down the power hierarchy between doctor/medical establishment and patient. The WFA, although it used the labor of women and has some aspects that may be able to be analyzed as feminist, was part of the ACS and was fueled by colonial and militaristic ideologies. Understanding this legacy gives depth to contemporary understandings of breast cancer activism.

**David Morris, *Communication Studies***

**The Rhetoric of Christian Love in the Children of God Religious Sect**

My paper will attempt to trace the lineage of the ideology and language of the notorious Family religious group (aka The Children of God), with a specific focus on the group's beliefs on the relationship between spirituality and sexuality. The Old and New Testaments equated the relationship between the human and divine with, variously, marriage or romance. The concept of love, along with its related terms, was repeatedly employed in describing the relationship between God and the Church, and that between Jesus and his followers. However, this term had much different implications by the mid-20th century, when traditional concepts of human romance and sexuality were under attack in the West. The Family's doctrines amount to an amalgamation of the traditional religious concepts of love and the more modern concepts of free love, with the outcome that sexual intercourse is explicitly injected into religious discourses. In fact, Jesus himself becomes a sexual object. My paper will trace the complexities of this strange ideological journey.

**Daniel Proctor, *Anthropology***

**Multidimensional Morphometrics of the Proximal Hallucal Metatarsal Articular Surface in Hominoids**

This study looks at the emergence of modern bipedalism. Multidimensional morphometrics is used to compare the proximal articular surface of the first metatarsal between Homo, Pan, Gorilla, Hylobatidae, and Pongo. Casts of the fossils AL 333-54 (*A. afarensis*), STX 5017 (*P. robustus*) and OH 8 (*H. habilis*) are analyzed and compared to Homo sapiens in light of the data gathered. Seventeen landmarks are measured on the articular surface with a microscribe and analyzed with the software morphologika©. Significant differences in articular surface morphology exist between *H. sapiens* and the apes; while the OH 8 articular surface is indistinguishable from *H. sapiens*, AL 333-54 and STX 5017 show traits that group them more closely with all of the apes, and indicate retention of the ability to abduct and rotate the hallux. *P. robustus* shows more similarity to the apes, while *A. afarensis* shows characteristics present in modern Homo.

**Jason Rose, *Psychology***

**The Persistence of Comparative -Optimism and -Pessimism Biases in Competitions: Evidence for Motivated Reasoning**

Recent research showed that egocentric focus can result in comparative- optimism and pessimism in competitions. For instance, Windschitl et al (2003) showed that when evaluating one's likelihood of victory in competitive events (e.g., trivia, poker), participants egocentrically focused on how shared circumstances (i.e. factors that should help or hurt all competitors; e.g. easy or hard trivia domains) affected the self, while ignoring how these circumstances impacted other competitors. Thus, people were optimistic when beneficial circumstances existed and pessimistic when adverse circumstances existed. Two studies explored whether learning about our competitors via experience can encourage participants to gain insight into their biases and enact a correction process. Results showed that participants were willing to increase confidence when initially pessimistic, but were unwilling to reduce confidence when initially optimistic. These findings reveal the power of motivated reasoning and a person's desire to believe positive information about the self and ignore the negative.

**Tricia Seifert, *Counseling, Rehabilitation and Student Development***

**The Effects of Diverse Faculty Characteristics on Dimensions of Job Satisfaction**

This study extends the literature of understanding the job satisfaction of women and faculty of color by including faculty with disabilities and those who were first-generation college students to the definition of diversity. Using the multi-dimensional job satisfaction framework advanced by Kalleberg (1997), the findings support previous research with men consistently reporting greater levels of satisfaction than women. Faculty of color tend to be less satisfied than their White colleagues but this dissatisfaction differs by race and ethnic group and depends on the dimension of job satisfaction examined.

**Samuel Van Horne, *Teaching and Learning***

**Analyzing the Effect of Course Management Systems on Teaching and Learning**

The purpose of this paper is to investigate how the use of course management systems (CMS) affect teaching and learning especially as they relate to literacy. I investigate the history of CMS, its theoretical foundation, and its current application in higher education. Because CMS are less than ten years old, the literature is somewhat limited. The paper discusses the fact that CMS grew out of a desire to enhance face-to-face learning, rather than as a tool to

supplement distance education courses. I demonstrate that though the current literature praises the effect of CMS on teaching and learning, little empirical evidence exists to support the claim that is made. Articles are found in journals that discuss technology and education. EDUCAUSE, which I cite often, is a national organization that closely follows CMS and publishes detailed research on its implementation.

**Patricia Wade, *Educational Psychology***

**University Students' Spelling Proficiency and Implicit Learning of Words During Text Reading**

How do students who differ in spelling proficiency learn difficult low frequency words during text reading? The primary objectives of this study are to assess the impact of implicit and explicit learning experiences on students' dictation scores and to compare the effects of the learning experiences on the dictation scores of good and poor spellers. Knowledge of individual differences in the implicit cognitive processing of spellers can lead to a greater understanding of how implicit learning influences students' spelling. This knowledge can assist educators in the design and modification of both instruction and instructional environments in ways that optimize the students' spelling proficiency.

**Ryan Wells, *Educational Policy and Leadership Studies***

**Persistence in Higher Education: The Effects of Social and Cultural Capital**

This study addresses the role that social and cultural capital play in first-to-second year persistence in higher education. In doing so, this study establishes a greater understanding of the mechanisms by which social class affects persistence and illuminates the ways in which persistence decisions may play a role in educational and social stratification. Using logistic regression analysis, the results show that social and cultural capital are positively significant for persistence in higher education across all racial and ethnic groups. The implications for higher education policy and further research are discussed.

**Grace White, *Psychology***

**Hostility in Marriage: The Behavioral Effects of Trait Hostility on Marital Interaction & Satisfaction**

The purpose of this study is to examine how hostility, as a negative personality trait, contributes to the marital relationship. For many years hostility has been considered an important psychological risk factor for health related problems, like coronary heart disease and premature mortality (Alder & Matthews, 1994; Miller, Smith, Turner, Guijarro, & Hallet, 1996). Current research suggests that hostility has broader implications for social relationships and social interactions. Using a subset of 66 couples from the Marital and Family Development Project, associations among trait hostility, marital satisfaction, and affect/behavior in problem-solving interactions were examined. Findings suggest that hostility is associated with negative affect within the marital relationship and should be further explored for its long-term effects.

**Tina Wildhagen, *Sociology***

**Cultural Capital Matters: How Cultural Capital Affects the Racial Gap in Academic Achievement**

What role does cultural capital play in the persistence of racial and ethnic gaps in academic outcomes? I argue cultural capital's role in perpetuating these gaps reflects not only mean differences in cultural capital across groups, but also racial and ethnic differences in the processes through which cultural capital affects academic outcomes. I propose that two mechanisms of the cultural capital effect, teachers' perceptions of students' effort and habitus, account for the cultural capital effect more for white than nonwhite students. I use NELS data to construct a structural equation model to test these ideas. Cultural capital enhances habitus more for blacks than whites. However, teachers perceived black students with cultural capital less favorably than whites. The results show that, while minority groups' lower levels of cultural capital do contribute to racial gaps in academic achievement, the processes by which cultural capital affects academic outcomes also differ for blacks and whites.

## Campus Building Map and Directions



**The Blank Honors Center**, the site of the daytime conference events, is located in between Daum Residence Hall and the Chemistry Building

**The Levitt Center**, where we will be holding the Fine and Performing Arts Showcase and Awards Ceremony, is located near Hancher Auditorium.

### **Driving:**

For the Levitt Center, take Dubuque Street North, turn left at the light onto E Park Road, turn left again to stay on E. Park Road and arrive at the Levitt Center.

### **Parking:**

For parking near Blank Honors Center, the IMU parking ramp is located just around the corner. During the evening program, you can park in the Hancher Commuter Parking Lots.

### **Cambus:**

We recommend taking the Blue Route from MacBride Hall to Hancher (:12 & :42 past the hour) and the Red Route back to Schaeffer Hall (:19 & :49 past the hour)

## Acknowledgements

**Thank You!**

### *The Graduate College*

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### *Faculty Volunteers*

Thank you to the following faculty members who have volunteered their time to serve as judges, carefully scoring the student submissions for the Conference:

**Biological and Life Sciences Division:** Hyonggin An, Leon Burmeister, Kathryn Chaloner, K.B. Chandran, Warren Darling, Gerene Denning, Maureen Donovan, Michael Feiss, Shawn Flanagan, Laurence Fuortes, Jack Lilien, Nancy Lill, Joseph Reinhardt, Tara Smith, Duane Priestersbach, Todd Washington, Jerry Weiss, Christine Weydert, Ying Zhang

**Fine and Performing Arts Division:** Anthony Arnone, Joseph Coates, Jan Albert Gratama, Franklin Miller

**Humanities Division:** Daniel Balderston, David Cunning, Mary Depew, David Depew, Patricia Foster, Loren Glass, Colin Gordon, Daniel Gross, Sarah Hanley, Jay Holstein, Chuanren Ke, William Kupersmith, Judith Liskin-Gasparro, Leslie Margolin, Steve McGuire, Peter Nazareth, Astrid Oesmann, Sue Otto, Leighton Pierce, Morton Schlutter, Rosemarie Scullion, Russell Valentino, Sasha Waters, Rachel Williams, Fredrick Woodard

**Mathematical and Physical Sciences and Engineering Division:** Victor Camillo, Laura Frey Law, Greg Friestad, Edward Gillan, Khalid Kader, Ching-Long Lin, David Manderscheid, Jeffrey Marshall, Patrick O'Shaughnessy, Daniel Quinn, Madhavan Raghavan, John Robinson, Jan-Uwe Rohde, Ralph Russo, Brian Smith, Nick Street, Geb Thomas, Shaoping Xiao

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### *Student Volunteers*

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### *Administration*

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-NOTES-