Grad Expo 2012 Program Information
Welcome to Grad Expo 2012!

We would especially like to thank William Kepler Whiteford Professor and Vice Provost for Research George E. Klinzing and Provost and Senior Vice Chancellor Patricia E. Beeson. From the School of Arts and Sciences, we thank the Bettye J. and Ralph E. Bailey Dean of Arts and Sciences, N. John Cooper; Interim Associate Dean for Graduate Studies and Research Stephen Carr; and Interim Assistant Dean Robert Walters. These administrators have been extraordinarily generous in their continuing and increasing support for this conference. We also extend our thanks to Carol Mullen, director of communications for the School of Arts and Sciences, for supporting the marketing and advertising efforts for this year's Expo. Thanks also to the Department of University Marketing Communications, in particular Marygrace Reder, for their hard work in coordinating the creation of the awesome printed materials. The Committee is indebted to the advocacy of the department representatives serving on the Arts and Sciences Graduate Student Organization (A&S GSO) Council. Without their commitment, this event would not be possible. We extend our appreciation to the student and faculty judges who have taken time out of their busy schedules to help moderate this event and share their feedback with presenters. We are excited to co-sponsor a special roundtable discussion on teaching philosophies with TA Services, a collaboration that we hope will enrich the experiences of graduate students in the Dietrich School of Arts & Sciences.

This interdisciplinary exposition and conference is a unique opportunity for graduate students from the humanities, social sciences, and natural sciences to develop presentation skills and engage with research from students across the Dietrich School of Arts & Sciences. The Grad Expo committee is grateful to have the opportunity to coordinate this event.

And of course, we thank the presenters for sharing their research and work with the University of Pittsburgh community. Enjoy the day!

Sincerely,

The 2012 Grad Expo Committee
Adrienne Spillar, Religious Studies, A&S GSO Administrative Assistant (chair)

Emily Bailey, Religious Studies
Kristy Gogick, Chemistry
Brian Graham, Chemistry
Michael Lipschultz, Computer Science
Charles-Louis Morand-Metivier, French & Italian
Katie Moriarty, French & Italian

Schedule of Events

8:30am: Complimentary Breakfast

9:00am: Opening Remarks

9:30-11am: Paper Sessions 1a-1d

10:00am-12:00pm: Poster Session A

11:15-12:45pm: Paper Sessions 2a-2d

1:15-2:45pm: Paper Sessions 3a-3d

1:30-3:30: Poster Session B

2:45-4:15 Roundtable Discussion: Teaching Philosophies

2:45-4:15pm: Paper Sessions 4a-4c

5:30pm: Awards Presentation and Reception

Presenters

Poster Session A

Junming Huang, Mathematics
Hierarchical Structural Models of Portfolio Credit Risk

Jessica Levenson, Psychology
Evaluating the Clinical Impact of Treatments on Patients in Randomized Clinical Trials

Amanda Koury, Psychology
Using a Strength-Based, Multi-Theory Approach to Understanding Children of Immigrants' Achievement in the Classroom

Zhiting Li, Chemistry
Atmospheric Oxidation of Suspended and SiO2 Supported Graphene

George Meindl, Biological Sciences
The Influence of Serpentine Soil Chemistry on Plant Morphology and Plant-Animal Interactions: an Experimental Test of the Common Monkey-Flower, *Mimulus Guttatus*

Erica McGreevy, Biological Sciences
Analysis of Novel Interactions Between Shroom3 and Planar Cell Polarity Signaling During Neural Tube Closure

Feng Zhou, Chemistry
Molecular Lithography using Nanostructured DNA and Poly-peptide Templates

Sally Kim, Linguistics
Biases in Children's Use of Past Tense: A Hungarian perspective

Patrick Straney, Chemistry
Robust, Bottom-up Synthesis of Gold Nanoparticles for Scalable Manufacturing

Sara Smith, Chemistry
In Vitro Metabolism of Ceratamine A and B

Nausica Marcos Miguel, Linguistics
An Analysis of Verb-Noun Compounds' Tolerance to Diminutives

Lisa Leibering, Theatre Arts
"A Phenomenon Within a Phenomenon": Cordelia Howard, Child of Wonder and Nature

Lauren Oldfield, Biological Sciences
Global Gene Expression of Mycobacteriophage BPs

An-Kwok Wong, Intelligent Systems
Genetic Variations Associated With Age of Onset of Alzheimer's Disease

Robert Rossi, Geology and Planetary Sciences
Effects of Road Density and Proximity on Soil Metal Concentrations

Christopher Amrich, Biological Sciences
Uncovering the Role of Cdc73 in the Paf1 Complex: High Resolution sSructure of *S. Cerevisiae* Cdc73 C-terminal Domain

Jen-Feng Hsu Phsycis & Astronomy
Quantum Measurements between a Single Spin and a Nanomechanical Oscillator

Poster Session B

Berhane Messay, Psychology
The Influence of Heart-rate Variability on the Inflammatory Response to Acute Psychological Stress

Everett Hay, Chemistry
Unexpected Sulfonyl Free-Radical Chemistry

Adam Wier, Biological Sciences
Structural Characterization of the *S. Cerevisiae* Rtf1 Histone Modification Domain

Kathryn Micko, Chemistry
Evaluating the Flowing Afterglow for Real Time Identification and Quantification of Multiple VOCs

Vivian Appler, Theatre Arts
In the Still of the Night: Andromeda's Dark Stuff

Homa Baradaran Hashemi, Intelligent Systems
Reading Comprehension Question Answering : Information Retrieval Based Approach

Timothy Licquia, Physics & Astronomy
What Is The Color Of The Milky Way?

Alison Kreisler, Neuroscience
Does “Overeating” a Palatable Food Activate Hindbrain Glucagon-like Peptide-1 Neurons?

Elizabeth Raupach, Biological Sciences
Analysis of ncDNA Transcription for Roles in Regulating Gene Expression

Matthew Koski, Biological Sciences
How Pollinators See It: Variation in an Ultraviolet Floral Trait

Gerardo Arceo, Biological Sciences
Long Live the Flower: Increasing Flower Longevity with Increasing Community Diversity

Karen Ricardo, Chemistry
Surfactant-free Exfoliation of Graphene in Aqueous Solutions

Benjamin Robinson, Economics
Brownfield, Greenfield: A Hedonic Estimation of the Remediation and Redevelopment of the Slag Heap at Nine Mile Run

Zachary Reinert, Eli D. Musselman, Adrian H. Elcock, and W. Seth Horne, Chemistry
Biocompatible Polymer as a Backbone Replacement for Surface-Exposed Protein Loops

Redha Mohammad, Geology & Planetary Science
Using Thermal Infrared (TIR) Data to Characterize Dust Sources, Dust Fall and the Linkage to Climate in the Middle East

Debamitra Das, Biological Sciences
Investigating the Implications of Shroom: Rock Interactions in Cell Shape Change and Behavior

Paper Panels

Panel 1a: Media Forms, Society, and Identity

Lisa Dolasinski, French & Italian
Fiction Film: Melodrama as Artillery in the War against the Mafia

Laura Caton, German
Emotional and Emancipated Men: Depiction of Gender in "Der bewegte Mann"

Rachel DeSoto, Theatre Arts
The (Female) Bodies of Juárez: Staging Violence in Marisela Treviño Orta's Braided Sorrow

Olga Klimova, Slavic
Visualizing Post-Stalinist Youth: The Change of Ideological Climate and the Genre of Soviet Youth Films

Panel 1b: Considering the Self and Consciousness

David Wright, Theatre Arts
Prospero's Magical Circle: Metatheatrical Explorations in the Alteration of Self-consciousness in Shakespeare's "The Tempest"

Marcus Adams, History and Philosophy of Science
Maker's Knowledge and Underdetermination in Hobbesian Natural Philosophy

Kathryn Tabb, History and Philosophy of Science
Reasoning with Madness: Charles Darwin on Human Nature

Jasmin Özel, Philosophy
Attention, Consciousness, and William James's Discussion of Epiphenomenalism

Panel 1c: Exploring Identity and Society in Art, Film, and Music

Jiayao Han, History of Art & Architecture
Uneasy Paradise: The Adoption of Enemy Customs and Trappings in Noble Tombs of the Zhao State (386-228 BCE)

(Denise) Nicole Pollentier, History of Art & Architecture
The Emergence of SÚM: Collective Art Practice in Iceland, 1965-1978

Christiana Molldrem, Theatre Arts
Dragging Mexico: Astrid Hadad's Performance across Borders

Stephen Hager, Music
Wacongo Dance Company: The Ethics and Aesthetics of African Music and Dance Performance in Pittsburgh

Panel 1d: Quantitative Explorations in the Sciences

Shonali Dhingra, Physics and Astronomy
Quantum Interactions of a Nanomechanical Oscillator with a Single Spin

Xiaopeng Li, Physics & Astronomy
Time Reversal Symmetry Breaking of p-orbital Bosons in a One-dimensional Optical Lattice

Tracy Stepien, Mathematics
Stretch-dependent Proliferation in a One-dimensional Elastic Continuum Model of Cell Layer Migration

Priyanka Upadhyai, Biological Sciences
Why do Transcriptional Repressors Recruit More than One Corepressor?

Panel 2a: Psychological and Philosophical Considerations of the Body

Peter Distelzweig, History and Philosophy of Science
Sensation and Locomotion in Aristotle, Fabricius and Harvey

Kristina Swanenberg, Psychology
Catching Cheaters: Cheating as a Special Case of Deception Detection

Lauren Ross, History and Philosophy of Science
Value, Dysmenorrhea and The Definition of Disease

Jessica Ansel, Psychology

Lifetime Exposure to Job Strain and Its Effects on Ambulatory Blood Pressure

Panel 2b: Diverse Studies in Identity, Community, and the Environment

Ronald Alfaro-Redondo, Political Science
Is Economic Voting Mediated by the Role of the State in Latin America?

Inga Meier, Theatre Arts
The Conspirator, Brechtian Verfremdungseffekt, and Civil Rights in Post 9/11 America

Kristina Hopkins, Geology & Planetary Science
Rerouting Urban Waters: A Historic Examination of the Age of Imperviousness

Jeremy Woodruff, Music
An Audience of Performers: Subversive Sound in the Worker's Movement of the 1930s U.S.A.

Panel 2c: Religion: Considering Texts and Contexts

Elizabeth Self, History of Art & Architecture
Preaching on the Margins: The Depiction of Outcasts in the Ippen Hijiri-e

Lianghao Lu, Religious Studies
The Taiping Rebellion's Influence on the Chinese Bible

Elizabeth Morrissey, History of Art & Architecture
Displaying the Hidden: Illustrating Secret Rituals in the Ishiyama-dera Illustrated Handscroll

Emily Stewart, Religious Studies
Reading Technology and its Impact on Sacred Texts

Panel 2d: Systems Analysis: Money, the Market, Math and Mortgages

Tekin Kose, Economics
Price Convergence and Fundamentals in Stochastically Lived Asset Markets: An Experiment

Christopher Jones, Mathematics
The Mathematician and the Mortgage

Joseph Pleso, Computer Science
Distributed Formal Proof Certification

Torsten Jochem, Economics
Proxy Access & Shareholder Wealth - Evidence from a Natural Experiment

Panel 3a: Intersections between Space/Place and Identity

Sharon Quinsaat, Sociology
"Everybody Around Here is from Some Place Else": News Frames and Hegemonic Discourses in the Immigration Debates in the United States, 2006 and 2010.

Josephine Landback, History of Art & Architecture
Breton's "The Song of the Lark": A Transcultural American Icon

Charles Lwanga, Music
Reconstructing East Liberty: Place, Race and Music at Ava and Shadow Lounges of Pittsburgh, PA

Donald Simpson, History of Art & Architecture
Civic Center and Cultural Center: Keywords for Architectural and Urban Planning History

Panel 3b: Quantitative Approaches to Understand the Environmental

Michaela Kubacki, Mathematics
Uncoupling Evolutionary Groundwater-Surface Water Flows Using the Crank-Nicolson Leap Frog Method

Alison Hale, Biological Sciences
Impacts of the Allelopathic Invader, Garlic Mustard, on Native Plant Carbon Acquisition and Allocation

Erin Pfeil-McCullough, Geology and Planetary Sciences
Changes in landslide susceptibility during canopy loss scenarios in Pittsburgh, PA

Marina Moraiti, Mathematics
On the Quasistatic Approximation in the Stokes-Darcy Model for Groundwater-Surface Water Flows

Panel 3c: Deconstructing Beliefs in Diverse ways

Laura Cabrera, French & Italian
Relevance of Authorial Voice in Fontamara

Joseph Franke, Music
William Grant Still and the Consequences of His Musical Principles

Nicholas Thorne, Classics
Plato and (Post-) Modernity

Tucker Ferda, Religious Studies
The Anti-Marcionite Implications of Origen's Textual Criticism

Panel 3d: Understanding African-American Identity and Community through Media and Music

Taylor Hahn, Communication & Rhetoric
Understand Ororo: Analyzing Marvel Comic's Storm through a Black Feminist Lens

Daniel Barlow, English

Black Arts and Blues Violence: Reading the Blues of Amiri Baraka

Emily Crosby, Communication and Rhetoric
Racism, Sexism, and Constructive Authenticity: The Othering of Black Women in the "Women Who Rock" Exhibit

Lee Ellen Martin, Music
Café Society: A Social Catalyst of Equal Opportunity for African American Women in Jazz.

Panel 4A : Approaches to Consider Human Thinking and Relationships

Yun Wang, Economics
Should You Believe Me? Bayesian Persuasion with A Committee

Elay Shech, History and Philosophy of Science
Assume a Spherical Cow: Essential Idealization in Physics

Jae Kang, Economics
Communication between Multiple Informers and a Constrained Decision-maker

Odile Hobeika, Communication & Rhetoric
Urgent Decisions About Infinite Matters: A Rhetorical Framework for Understanding Climate Policy

Panel 4b: Exploring Religious, National, and Ethnic Identities

Kaitlyn Myers, Music
“You must be quiet so that we can hear”: Ballads and Memory in an Irish Traditional Session

Selman Yilmaz, Sociology
From a Congregation to a Social Movement: Identity Changing in the Gulen Movement

Cengiz Haksoz, Anthropology
Domination and Existence: Contested Nationalist and Religious Practices at a Muslim Shrine in Bulgaria

William Blomfelt, German
Blowing Smoke: the Talking Turk in E.T.A. Hoffmann’s "The Automatons"

Panel 4c: Approaching Issues in Academia

Sarah Bishop, Communication & Rhetoric
The Rhetoric of Study Abroad: Perpetuating Expectations and Results through Technological Enframing

Peter Wayne Moe, English
Narratives of Teaching as Representations of Pedagogy

Yue Li, Economics

How Immigrants Affect the College Major Choices of Native-born Americans: a General Equilibrium Analysis

Justin Sevenker, English
Provocations: Teacher Memoir and a New Vision of Education

Panel 4d: Exploring Issues in Language

Hsin-Yi Tsai, Anthropology
Rhetorical Adoption and Emotional Ties in Pohnpei, Micronesia

Holman Tse, Linguistics
Consonant and Tone Interaction in Cantonese

Huichao Xue, Computer Science
Learning Distance Metrics for ESL Word Choice Similarities

Laura Morrett, Psychology
Can Gesture Facilitate L2 Acquisition?

Abstracts

Poster Session A

Junming Huang, Mathematics
Hierarchical Structural Models of Portfolio Credit Risk

The recent financial crisis has posed a significant challenge to credit default modeling. We propose hierarchical structural models for a large pool (approximately 125) of companies to study the default clustering phenomenon, driven by cyclical dependence (the dependence of defaults through common macroeconomic conditions) and contagion (the direct interaction (business link) between defaults in the same industry). Compared to the original hierarchical structural model (toy model) first proposed by Vasicek (1987), our model is able to generate a multi-humped loss distribution that practitioners believe is the mechanism for explaining the recent occurrence of larger losses with higher probability. Analytically, we show that this can be understood as an application of Levy's arcsin law and the strong law of large numbers. We develop analytic approximation that allows for fast and accurate calculation of loss distribution using recursive algorithm. We also incorporate the contagion effect and find that the model increases the level of default clustering.

Jessica Levenson, Psychology
Evaluating the Clinical Impact of Treatments on Patients in Randomized Clinical Trials

Randomized Clinical Trials (RCTs) provide the basis for evidence-based medicine. Yet, they are plagued with a few key problems. One problem is that the vast majority of RCTs reflect the statistical effect of treatments on individual measures of outcome, rather than the clinical effects of treatments on individual patients who experience multiple outcomes, such as benefits and harms. Even if multiple outcomes are reported they are typically evaluated separately for groups of patients. A metric that

captures multiple measures of the impact of a treatment on individual patients would be much more relevant to medical decision-making. Assessing benefits and harms simultaneously in an RCT may be challenging because the absence of one outcome does not necessitate the presence of another, and vice versa, leading to four potential outcomes for each patient in each treatment (i.e., benefit with harm, benefit without harm, harm with no benefit, neither benefit nor harm). If we can calculate the probability of each outcome for each treatment, we can choose the appropriate treatment for each patient based on the desired balance of benefits and harms. The question remains as to how one can assess benefits and harms simultaneously, in order to choose the most appropriate treatment. In this project we describe how one might carry out a novel method of assessing benefits and harms simultaneously in individual patients using a panel of expert raters who rate patient "report cards." We describe methods for concurrently assessing harms and benefits by expert raters who must integrate both outcomes in their overall assessment of treatment preference. We then explain how this method might be used to choose which treatment is most appropriate for which patient based on the preferred harm-benefit balance. These principles will be illustrated with data from a completed RCT evaluating interpersonal psychotherapy and escitalopram.

Amanda Koury, Psychology

Using a Strength-Based, Multi-Theory Approach to Understanding Children of Immigrants' Achievement in the Classroom

Children of immigrants represent the fastest growing segment of the US child population. While this burgeoning group changes the demographic landscape, the theories used to guide practice and policy on school readiness must also change to reflect the diverse school-age population. Though research focused on children of immigrants has expanded, these children remain vastly underrepresented in school readiness literature. Much of the research examining school readiness among children with immigrant parents highlights the differences in academic achievement based on parental nativity status/region of origin or, alternatively, focuses on risk factors that immigrant families and their children face. This emphasis on achievement discrepancies and risk factors has yielded a body of research that approaches children of immigrants' academic success and school readiness from a deficit-perspective. Using a deficit-approach does more to underscore how these children fall short without identifying strengths of immigrant families and children. Moreover, such a framework does little to understand why such differences exist, even after taking into account variations in demographic and socioeconomic backgrounds. Culture is often considered a nuisance variable, a factor to be controlled for statistically, or a feature of the family that puts the child at a disadvantage in the classroom. This paper proposes to apply a strength-based perspective to understanding achievement differences among children of immigrants by identifying culturally-guided parenting values, beliefs, and practices that promote school readiness. To this end, we propose a multi-theorem approach to understanding academic achievement among children with immigrant parents. Due to the vast heterogeneity of the immigrant population, the application of multiple lenses can help shed light on achievement differences more comprehensively. Specifically, we will apply Vygotsky's sociocultural theory, Bronfenbrenner's bioecological theory, and a cultural models framework to examine parental involvement, academic socialization, and patterns of non-parental childcare usage across various cultures.

Zhiting Li, Chemistry

Atmospheric Oxidation of Suspended and SiO2 Supported Graphene

Graphene, a two-dimensional monolayer of sp2-hybridized carbon, has drawn significant attention due to its unusual physical properties and promising applications in electronic devices. In practice, however, many predicted properties of graphene can be obscured or altered by interactions with an underlying substrate. We study the chemical reactivity of suspended and Si/SiO2 substrate supported graphene by interacting with atmospheric oxygen at 550 ºC. On the supported regions, significantly higher D-band is observed. The suspended graphene shows much weaker D-band response, indicating much slower atmospheric oxidation process. Such different chemical reactivity may be owing to the substrate induced morphology change.

George Meindl, Biological Sciences

The Influence of Serpentine Soil Chemistry on Plant Morphology and Plant-animal Interactions: an Experimental Test of the Common Monkey-flower, *Mimulus Guttatus*

Unusual soil conditions contribute to plant speciation via physiological adaptation. The impact of these edaphic factors on biotic interactions, however, is poorly understood, yet it may also contribute to reproductive isolation. Serpentine soils are characterized by (i) a low Ca/Mg ratio, (ii) mineral nutrient deficiencies (N, P, K), (iii) poor water retention and (iv) high concentrations of heavy metals (Co, Cr, Ni). For serpentine adapted plant species, these edaphic factors may result in changes in plant morphology and chemistry, which may alter plant-animal interactions. Observations of Mimulus guttatus have shown that serpentine plants produce fewer, smaller flowers, shorter inflorescences and receive fewer pollinator visits and less damage from florivores relative to non-serpentine plants. Using an experimental approach, here we examine the influence of serpentine soil chemistry on plant morphology and plant-animal interactions for M. guttatus. Specifically, we address the following questions: (1) Do plants grown in serpentine vs. non-serpentine soil differ morphologically? (2) In artificial arrays of inflorescences placed in the field, are flowers collected from serpentine vs. non-serpentine populations equally likely to be visited by pollinators? (3) In artificial arrays of potted plants, do plants grown in serpentine vs. non-serpentine soil receive similar levels of florivory?

Erica McGreevy, Biological Sciences

Analysis of Novel Interactions Between Shroom3 and Planar Cell Polarity Signaling During Neural Tube Closure

One of the most critical events during vertebrate embryogenesis is the formation of the central nervous system. The brain and spinal cord develop from the neural tube, an embryonic structure that forms through a dramatic series of events collectively known as neural tube closure. Errors in this process result in neural tube defects (NTDs), a class of congenital malformations including spina bifida and exencephaly. Despite their high prevalence and devastating outcome, their causes are poorly understood. Neural tube closure is achieved in part by apical constriction of the neuroepithelium. The protein Shroom3 facilitates apical constriction through the activation of Rho-Kinase and non-muscle Myosin II. Mice deficient in Shroom3 exhibit exencephaly. Another critical regulator of neural tube closure is the Planar Cell Polarity (PCP) pathway. PCP signals to Rho-Kinase to guide convergent extension, a cell movement that narrows and lengthens the neuroepithelium to permit closure. Mice deficient in PCP exhibit NTDs. Using mice, I have uncovered novel genetic interactions between Shroom3 and PCP. Embryos heterozygous for mutations in both Shroom3 and the PCP component Vangl2 develop spina bifida, a NTD absent from either heterozygote. Double mutants exhibit shortened body axes, a phenotype associated with defective PCP. Additionally, NTDs seen in Shroom3

homozygotes are present in heterozygotes when null for Wnt5a, a PCP ligand. These embryos also exhibit a shortened body axis, indicating PCP malfunction. These data demonstrate that simultaneous disruption of Shroom3 and PCP results in an increase in the individual liability to NTDs and more severe PCP defects, supporting the hypothesis of crosstalk between Shroom3 and PCP. Additionally, I have shown that in cultured cells, Shroom3 colocalizes with the PCP component Dvl2. Biochemical analysis has confirmed this interaction. Based on these studies, we hypothesize that integration of the Shroom3 and PCP pathways occurs at the level of Dvl2.

Feng Zhou, Chemistry

Molecular Lithography using Nanostructured DNA and Poly-peptide Templates

We demonstrate a gas phase HF etching reaction that results in a direct pattern transfer from DNA and poly-peptide nanostructures to SiO2. DNA was found to mediated the etching of SiO2 to generate positive- and negative- tone patterns at the single molecule level. Poly-L-lysine nanostructure was fabricated by Dip-Pen Nanolithography and micro-contact printing; exposure to HF vapor resulted in a positive- and negative-tone pattern transfer to SiO2 substrate.

Sally Kim, Linguistics

Biases in Children's Use of Past Tense: A Hungarian perspective

This paper contributes newly relevant data to the debate concerning L1 acquisition of past tense. According to the Prototype Hypothesis (Shirai, 2002), the past tense is prototypically associated with verbs that are [+punctual], [+telic], and [+dynamic] (Achievements in Vendler (1957)'s four-way classification) and the progressive with verbs that are [-punctual], [-telic], and [+dynamic] (Activities in Vendler); therefore, children go through a period in which they concentrate their use of past tense on Achievement verbs. An examination of past-marked verbs in CHILDES transcripts from two Hungarian children (MacWhinney, 2000) revealed a prominent bias toward Achievements in their speech. This suggests that even in languages that have no progressive marking, of which Hungarian is one, early past-tense use excludes prototypically progressive (Activity) verbs.

Patrick Straney, Chemistry

Robust, Bottom-up Synthesis of Gold Nanoparticles for Scalable Manufacturing

Nanoscale materials exhibit unique, size-dependent properties that are absent in their molecular or bulk counterparts. These new optical, mechanical, and electronic properties have generated considerable attention, and are promising for applications ranging from cancer therapy to solar cells. While the potential of nanotechnology is evident, implementing these ideas at reasonable costs requires well-defined synthetic strategies that are easily modified and reproduced. Here, we report a robust approach for the solution-phase synthesis of gold nanorods with controllable dimensions and surface chemistry. By regulating the concentration of halide ions in the reaction mixture, gold nanorods were produced in high yield from a variety of metal ion precursors, seeds, and surfactants under several reaction conditions. We will demonstrate that this synthetic versatility allows for fine control of the composition, morphology, and physical properties of the resulting particles. Combined, these strategies will lead to the rational, scalable synthesis of plasmonically active nanostructures.

Sara Smith, Chemistry

In Vitro Metabolism of Ceratamine A and B

Ceratamine A and B are natural products which were isolated from the marine sponge Pseudoceratina sp. Both compounds were found to have anti-mitotic activity within a cell based assay, with IC50 values of 128 μM and 130 μM, respectively. Due to their simple structures and promising biological activity, these natural products are very attractive as potential anti-cancer agents. Understanding the metabolism of these drug candidates is an important part of determining their pharmacokinetic profile. In vitro systems were used in order to investigate the phase I metabolism of the ceratamines. Rat liver microsomes were chosen as a source of cytochrome P450 enzymes. These enzymes are largely responsible for phase I metabolic reactions. Ceratamine A was found to be metabolized more rapidly than Ceratamine B. After a 60 min incubation 81.9 ± 0.05% of Ceratamine B remained, however only 18.6 ± 0.5% of Ceratamine A remained. The specific metabolites of each compound were identified using liquid chromatography-tandem mass spectrometry (LC-MS/MS). Ceratamine A was found to be converted into at least six phase I metabolites. These include demethylated, double demethylated, and possibly aromatic hydroxylated metabolites. Ceratamine B had a less complex metabolic profile, being converted into only three phase I metabolites including: demethylated and possibly aromatic hydroxylated metabolites.

Nausica Marcos Miguel, Linguistics

An Analysis of Verb-Noun Compounds' Tolerance to Diminutives

This paper contributes to the discussion of Spanish verb-nouns compounds—e.g., sacacorchos, ‘removes corks, corkscrew’)—by providing empirical data that illustrates when verb-noun compounds can be inputs for diminutivization with the diminutive suffix -ito. Spanish verb-noun compounds tend to reject diminutive suffixes. This unwillingness to accept diminutives is surprising given that non-abstract Spanish nouns widely accept diminutives, and it supports the idea that verb-noun compounds are different from other words. If verb-noun compounds have an internal structure like any other word, there is no reason why a derivational suffix should not be accepted. This situation raises the following questions: 1. What are the factors (scope of the diminutive, frequency of the compound, number of syllables, level of transparency, and meaning) that favored/disfavored the acceptance of the diminutive? 2. What does this mean for the compound structure that some verb-noun compounds allow diminutives while others disallow them? Thirty-four Spanish speakers participated in an online Grammatical Judgment Test with 55 sentences containing a Spanish verb-noun compound with the diminutive suffix -ito. Participants rated the items using a five-point Likert scale. The chosen compounds differ in number of syllables, meaning (i.e., referring to a non-human being, sacacorchos, or a human being, buscavidas, ‘seeks lives, go-getter’), frequency and in the scope of the diminutive. A lineal mixed-model regression analysis showed that the best model to predict whether a compound can be input for diminutivization includes number of syllables, meaning and scope. Those compounds with three syllables, a non-human meaning and a scope that did not violate the morpho-phonological constraints imposed by the second stem were preferred candidates for diminutivization. This finding provides empirical support for compounds as non-word elements and opens new questions about their internal structure.

Lisa Leibering, Theatre Arts

"A Phenomenon Within a Phenomenon": Cordelia Howard, Child of Wonder and Nature

From 1852—1861, "Little" Cordelia Howard was celebrated, both nationally and internationally, for her portrayal of Eva St. Clare in George L. Aiken's adaptation of Uncle Tom's Cabin. A variety of sources, both scholarly and popular, credit Cordelia's acclaimed performance as significantly contributing to the unprecedented success of the production. In fact, for the entirety of her eight-year career on the stage, critics, theatre professionals, and the theatre-going public all consistently lauded Cordelia as not only a gifted actress, but also a remarkable young lady, worthy of documentation and expansive discourse. However, once Cordelia left the stage, it appears that the conversations stopped, as there is little scholarly contemplation of her career. What was it about the "child of wonder" that not only garnered the praise of theatre professionals and audiences, but also the adoration of the larger community outside of the theatre? Based upon my examination of hundreds of primary documents, I believe Cordelia Howard represented an incarnation of the "infant prodigy" phenomenon that was a departure from the dominant trope, not only in terms of her performance, but also her marketing, and thus, her reception. In this paper, I argue that three distinguishing characteristics significantly contributed to Cordelia Howard's appeal, and ultimate success, as a child actress: her status as both child and company member of a professional adult theatre troupe, the public perception of her acting as being natural rather than theatrical; and the utilization of a variety of media (such as playbills, reviews, and art objects), by both her family and the public, to craft a consistent, positive image for her, both on and off stage. It is my hope that this conversation about one young actress sparks further attempts to situate child performers, and children's theatre in general, in the larger realm of theatre history.

Lauren Oldfield, Biological Sciences

Global Gene Expression of Mycobacteriophage BPs

Mycobacteriophages are the largest group of sequenced phages known to infect a single host strain, Mycobacterium smegmatis mc2155. Global gene expression has not been well characterized for any mycobacteriophage. The genome of mycobacteriophage BPs is relatively small (42Kbp) with a low number of genes making it amenable to a detailed expression study. Utilizing promoter-reporter fusions, five BPs promoters have been identified, all located within short intergenic regions, 5-6, 54-55, 60-61 and in both orientations in 33-34. Detailed mutational analysis was undertaken with PR, the rightwards promoter from 33-34, and showed that the PR -10 sequence behaves similar to the consensus for mycobacterial σA promoters. Four of the five promoters are downregulated in a BPs lysogen. The operator (OR) site responsible for repression of PR has been identified through mutational analysis. Single point mutations in OR result in derepression of PR but no single mutation was able to fully derepress PR. Global gene expression was examined by RNA-Seq of a lytic and a lysogenic sample. Expression in the BPs lysogen is limited to the repressor and a mobile element. Expression is seen throughout the phage genome in the lytic, BPs-infected sample.

An-Kwok Wong, Intelligent Systems

Genetic Variations Associated With Age of Onset of Alzheimer's Disease

Several single nucleotide polymorphisms (SNPs) have been shown to be associated with development of late-onset Alzheimer's disease (LOAD). A comparison of patients who developed early-onset LOAD to late-onset LOAD revealed that while the SNPs in genes ApoE and ApoC1 are associated with both groups, SNPs in genes CR1 and CD33 are more strongly associated with early-onset LOAD and SNPs in genes BIN1 and CLU are more strongly associated with late-onset LOAD.

Robert Rossi, Geology and Planetary Sciences

Effects of Road Density and Proximity on Soil Metal Concentrations

Multiple studies have linked roadside soils with elevated concentrations of trace metals due to vehicular deposition. However limited attention is given to how transportation corridors affect base cation pools in roadside soils. These base cations serve as nutrients for vegetation and their depletion can impair ecosystem productivity. Base cations can become depleted when wet and dry deposition of NOx from vehicular exhaust, acidifies the soil, mobilizing cationic species. Base cations are displaced from soil exchange sites and flushed through the soil to groundwater and surface water systems Additionally, processes mobilizing base cations also mobilize trace metals elevating potentially toxic exposures in biota, including humans. To establish a relationship between metal concentrations (Al, As, Ca, Cd, Cr, Co, Cu, K, Mg, Mn, Ni, Na, Pb and Zn) and vehicular deposition, road density and road proximity were compared to soil chemistry in samples taken from roadside soils in three Southern California counties (Los Angeles, Riverside and San Bernardino). Base cations decrease in concentration with increasing local road density and trace metal concentrations behaved as expected; increasing as road density and proximity increased. These trends illustrate that ecosystems near transportation corridors not only experience detrimental effects from the elevated concentrations of trace metals but also due to the depletion of soil nutrients. These processes may impart legacy impacts to roadside soil systems.

Christopher Amrich, Biological Sciences

Uncovering the role of Cdc73 in the Paf1 complex: High resolution structure of S. cerevisiae Cdc73 C-terminal domain

The Paf1 complex is a five subunit protein complex involved in all phases of the transcription cycle. One of these subunits, Cdc73, is conserved from yeast to humans and is implicated in various cancers. Little is known about the function and domain architecture of Cdc73. My goal is to understand the roles of Cdc73 within the context of the Paf1 complex, through structural and biochemical studies of individual Cdc73 domains. I have determined the structure of the C-terminal domain of Cdc73 to a resolution of 1.55Å. The C-domain has little sequence homology to known proteins, however it has a high degree of structural homology to the Ras-superfamily of small GTPases. Despite this homology, Cdc73 C-domain lacks the key features required for GTP binding and hydrolysis. To identify any other potential ligands, we performed Thermal Shift Assays (TSA) using an array of active biomolecules. In addition, locations of conserved residues within Cdc73 C-domain indicate several surfaces that may be functionally important. In yeast, the loss of the C-domain results in reduced recruitment of Cdc73 to active genes as well as phenotypes associated with transcriptional defects. Surprisingly, mutating one conserved surface residue has phenotypes similar to the deletion of the C-domain. We are exploring the role of these conserved surface.

Jen-Feng Hsu Phsycis & Astronomy

Quantum Measurements between a Single Spin and a Nanomechanical Oscillator

Nanoscience has long been explored for either fundamental or applied research purposes. Fabrication of Micro/nanoelectromechanical system (MEMS/NEMS) is a big part of the experiments in this field. In recent years, specifically, there has been significant interest to demonstrate that quantum mechanics applies to these mechanical systems. We are trying to verify this by studying the interactions between a

nanomechanical oscillator (NMO) and a single spin. As a coupled system, the quantum state of the NMO (single spin) can be measured using the single spin (NMO) as a quantum probe. To heighten the oscillator's quantum nature, it is fabricated out of graphene and very thin films of aluminum oxide and is very small in size, 4-5um in length and 1-2um in width. It is fabricated as a free standing bridge or cantilever. The fabrication methods involve diamond tool machining, photolithography, focused ion beam milling, sputtering, etc. Scanning electron microscope is used to check surface quality of oscillators. Mechanical properties, such as resonance frequencies, are estimated using finite element analysis. Fabrication designs and methods, characterization and possible applications are presented here.

Poster Session B

Berhane Messay, Psychology

The Influence of Heart-rate Variability on the Inflammatory Response to Acute Psychological Stress

Acute psychological stress is associated with an up-regulation of components of the innate immune system, including an increase in circulating levels of proinflammatory mediators and increased production of cytokines such as interleukin (IL)-6 following exposure to endotoxin. To date the mechanisms of this acute effect remain unclear; however, evidence shows that the parasympathetic nervous system plays a role in the chronic down-regulation of the inflammatory response. In the current study, we examine the possibility that increases in the sympathetic and decreases in the parasympathetic branches of the autonomic nervous system that accompany acute psychological stress are associated with stress-related increases in pro-inflammatory cytokine production. For this purpose, 60 healthy mid-life volunteers (mean age = 50.5, 45% male) performed an acute laboratory stress protocol, consisting of a 30-min baseline period, a 5-min evaluative speech task, and a 30-min recovery period. Blood was drawn at the end of each period for the assessment of lipopolysaccharide-stimulated production of the proinflammatory cytokines IL-6, IL-8, IL-1β, and tumor necrosis factor (TNF)-α. Heart-rate variability, a measure of autonomic control over heart rate, was recorded throughout the protocol. Multiple regression analyses, controlling for demographic variables, revealed a significant association of stress-induced increases in the ratio of low to high frequency components of heart rate variability, an estimate of sympathovagal balance, with lower IL1- β production ($r = -.31$, $p = .028$). Furthermore, greater stress-related decreases in indices of vagal tone predicted increases in IL-8 production following the stress task ($r = -.38$, $p = .008$), with a similar trend for IL1- β ($r = -.24$, $p = .095$). These data provide initial evidence that the autonomic nervous system may play a role in the modulation of inflammation in response to acute psychological stress.

Everett Hay, Chemistry

Unexpected Sulfonyl Free-Radical Chemistry

Sulfonamides are a useful protecting group for amines. They can be easily installed and are stable under many conditions. They can make compounds easy to handle by adding fluorescence and increasing crystallinity. However, they can also be difficult to remove from a molecule, often requiring harsh conditions that may destroy sensitive compounds. Our group discovered an unexpected elimination of a sulfonyl radical from ene-sulfonamide precursors. This represents a mild way to remove a sulfonyl group from sulfonamides. We present a small library of compounds made by this

new methodology as well as an attempted synthesis of a natural product, with yet more unexpected results. These results add to the already diverse and powerful field of free-radical chemistry.

Adam Wier, Biological Sciences

Structural Characterization of the *S. Cerevisiae* Rtf1 Histone Modification Domain

During eukaryotic transcription, the progress of RNA polymerase II (pol II) is hindered by nucleosomes, the basic units of chromatin structure. This restrictive environment is in part controlled by posttranslational modifications on the histone proteins. These modifications, including methylation and ubiquitylation, act to alter the structural properties of chromatin and facilitate recruitment of factors associated with active transcription. The Paf1 complex (Paf1C) travels with actively transcribing pol II and is required for a number of histone modifications. Of Paf1C subunits, Rtf1 in particular, is required for the mono-ubiquitylation of histone H2B (K123) and the subsequent di- and trimethylation of histone H3 K4 and K79. Specifically, these modifications are mediated by a domain in Rft1 known as the histone modification domain (HMD). To begin understanding how this domain functions, we determined the crystal structure of a portion of the S. cerevisiae HMD, spanning residues 74-139. From this structure we have identified a highly conserved surface exposed patch that is required for HMD function. We predict this patch mediates an interaction with a binding partner important for Rtf1-dependent histone modifications. Functional importance of these residues and other surface exposed, conserved residues are being assessed in S. cerevisiae through mutagenesis coupled with a range of genetic and biochemical assays.

Kathryn Micko, Chemistry

Evaluating the Flowing Afterglow for Real Time Identification and Quantification of Multiple VOCs

An ability to identify and quantify volatile organic compounds (VOCs) will impact a number of fields including food science, environmental monitoring, and human health. Dimethyl sulfide is released by microorganisms present at the onset of the spoilage of meat. A diversity of terpenes are given off by plants, leading to, among other things, a variety of pleasing odors. Formaldehyde, a known carcinogen, can be outgased from a number of man-made materials including wrinkle resistant clothing and pressed wood products. Short-chain alkanes such as pentane, when detected on human breath, have been suggested as being markers for certain cancers. Aldehydes including hexanal and octanal have been implicated as biomarkers of diseases such as chronic obstructive pulmonary disease.
Despite evidence that connects VOCs to their sources; optimal methods for simultaneously measuring a diversity of compounds are still being developed. Chemical Reaction Mass Spectrometry (CR-MS) utilizes previously characterized gas-phase ion-molecule reactions under well-established sampling conditions for the quantitative analyses of gaseous samples. The Flowing Afterglow holds promise as a CR-MS technique to identify and quantify trace amounts of multiple VOCs in real time, without the need for preconcentration, and without the necessity of an external standard. The discussion of our work on the Flowing Afterglow for VOC analysis will include reagent ion considerations as well as data collection and data treatment protocols. The developed data protocols will be applied to validate the identification, quantification, and detection limits of a prepared mixture of VOCs. We will discuss errors associated with, and implications thereof, the technique coupled to the protocols used. Advantages of using the flowing afterglow, as well as challenges and limitations of the approach will be presented. Finally, results of initial studies on mixtures of VOCs relevant to environmental monitoring and breath analysis, as measured by the Flowing Afterglow will be discussed.

Vivian Appler, Theatre Arts

In the Still of the Night: Andromeda's Dark Stuff

'In the Still of the Night: Andromeda's Dark Stuff' is a performance research project that I have been devising over the course of the 2011-2012 academic year. This project is the third in a series of performance pieces that fall under the very broad research umbrella, 'quantum physics and cosmology.' Beginning with the script of the largest piece in the series, I focused on some of the most compelling themes from that play: Dark Matter, multi-dimensional space, and the astronomer Vera Rubin. In the past, my work has often included masks and puppetry as an essential element. This piece will be a one-woman show that explores these themes through storytelling, movement, and an interactive environment. Last semester, I was able to present my research as a performance workshop-sharing in the Henry Heymann theatre. The Grad Student Expo presents another opportunity to share my research in a manner that will also allow me to learn and develop the work. This is an application to present a living poster, along the lines of the early 20th Century 'living newspapers' project of the WPA. It will include some of the scientific, historic, and mythological research that I have found helpful in this performance development process. In addition to a poster, over the course of the day, actors will embody this research through the presentation of characters who might interact with viewers, or who might read a scene from a working script for this play. These presentations will give me a chance to get some audience feedback from people working in a wide variety of disciplines, which will help as I continue to build the performance, which will be produced in the 2012-13 academic year.

Homa Baradaran Hashemi, Intelligent Systems

Reading Comprehension Question Answering : Information Retrieval Based Approach

Question answering is one of the most challenging problems in Natural Language processing. Most researches on reading comprehension question answering (QA) systems has focused on improving the results using complex natural language processing (NLP) and machine learning (ML) techniques rather than using informational retrieval (IR) techniques. This paper describes our initial work examining the potential of using IR based approach for reading comprehension (RC) QA system.
As exemplified by the question answering track of the Text REtrieval Conference (TREC) series, QA for reading comprehension has many similarities with QA in large text collections. So, the main aim of this paper is to explore how well IR based approaches can perform on reading comprehension task by finding the answer of a question or limiting the retrieved choices to a few number of answers. In general, our proposed QA system’s approach is to use different IR techniques for retrieving relevant documents based on similarity between the questions as queries and sentences in the stories as documents. For this purpose, we used the Lemur IR toolkit to index each sentence of a story as a document in the corpus and then retrieved related sentences to questions. In our experiments, we evaluated different IR based methods to design a QA system for RC tests on three baseline datasets. The experimental results show that (1) Using IR based methods can be quite comparable with complex ML based approaches. (2) Applications of feedback retrieval model, WordNet and reference resolution improve accuracy. (3) Although our results are not always dominant in comparison with previous researches on these datasets, experiments show that the obtained results get best precision p@2, p@3 and p@5, so it can be very promising to narrow down the search for finding the correct answer of a question to only its top k retrieved answers.

Timothy Licquia, Physics & Astronomy

What Is The Color Of The Milky Way?

For most galaxies with known redshift (z), the properties we can measure best are their color and luminosity, making these quantities vital for classifying galaxies from the local universe to high z. However, it is difficult to determine these same properties for the Milky Way, the galaxy we can study in the most detail, due to our location within it. Here, we employ a new approach which is immune to the effects of interstellar reddening. Using new infrared measurements of the Milky Way's star formation rate and dynamical measurements of its stellar mass (along with their attendant uncertainties), we identify samples of galaxies in Sloan Digital Sky Survey data with matching properties, and evaluate the distribution of colors and luminosities of these analogs. Essentially, we make the Copernican assumption that the Milky Way is not unusual for a galaxy of its mass and star formation rate. This procedure tightly constrains the possible photometric properties of the Milky Way. We present results for both ugriz colors and absolute magnitudes, and explore the impact of potential systematic errors. We also present a gallery of images of galaxies whose properties should be similar to those of the Milky Way. Our results show that the Milky Way must be amongst the brightest, reddest star-forming spiral galaxies, with an overall color which is likely only slightly bluer than the bluest red sequence galaxies.

Alison Kreisler, Neuroscience

Does “Overeating” a Palatable Food Activate Hindbrain Glucagon-like Peptide-1 Neurons?

Current studies support a role for glucagon-like-peptide-1 (7-36) amide (GLP-1) to inhibit food intake. Endogenous GLP-1 derives almost exclusively from neurons in the hindbrain nucleus of the solitary tract (NTS), and these neurons project to brain regions that integrate visceral sensory feedback from the gut and other organ systems. GLP-1 neurons in rats are activated by mechanical gastric distension and other treatments that inhibit food intake, and central administration of synthetic GLP-1 inhibits food intake. However, the design of previous studies implicating GLP-1 as a central satiety signal that contributes to termination of food intake provide more support for the idea that GLP-1 mediates stress-induced hypophagia, but not normal satiety. Indeed, we previously reported that GLP-1 neurons are not activated in satiated rats after food intake. The present study examined whether GLP-1 cells might be recruited when rats “overeat” a palatable food, to test the hypothesis that GLP-1 signaling provides a safety signal in non-stressful feeding situations that might otherwise produce excessive gastric distension. We subjected naïve adult male rats to overnight food deprivation and then allowed them to voluntarily consume unlimited or restricted amounts of standard chow and water, or highly palatable liquid Ensure. One hour after the end of the meal, rats were sacrificed, gastric volumes were assessed, and fixed brains were processed for immunocytochemical localization of GLP-1 and cFos to identify activated neurons. Results thus far suggest that non-stressful food intake of even very large meals does not activate GLP-1 neurons, even when rats’ stomachs are quite distended. Although our study is ongoing, these results challenge the view that GLP-1 signaling contributes to inhibition of food intake under non-stressful conditions.

Elizabeth Raupach, Biological Sciences

Analysis of ncDNA Transcription for Roles in Regulating Gene Expression

Transcription of ncDNA is pervasive in eukaryotes and plays important regulatory roles. Members of our lab are elucidating the mechanism for one such regulatory role for the yeast gene SER3. SER3 encodes an enzyme involved in serine biosynthesis which is expressed when cells are starved of serine. When serine is present, SER3 is repressed by the transcription of a ncRNA, SRG1, over its promoter. The act of transcribing SRG1 positions nucleosomes over the SER3 promoter, which physically blocks transcriptional activators from accessing the SER3 promoter and maintains SER3 in a repressed state. To examine if other genes are regulated by a similar mechanism, I have selected candidate genes expressing ncRNAs over their promoters using available genome-wide transcription data. To test whether ncRNA transcription regulates the neighboring genes, I am prematurely stopping ncRNA transcription and observing what effect this has on the downstream gene. Thus far, I have successfully terminated transcription of the ncRNAs at four of my candidate genes and all four affect coding transcript levels. Of particular interest, the ncRNA over the ECM3 promoter appears to affect ECM3 start site selection and the ncRNA over the KNH1 promoter may be repressing uncharacterized transcripts.

Matthew Koski, Biological Sciences

How Pollinators See It: Variation in an Ultraviolet Floral Trait

Pollinators see flowers in a different light than humans. In particular, they see in the UV spectrum and can ascertain 'hidden' patterns on flowers that go undetected by our eyes. While selection on visible flower color has been, and still is a major field of study, variation and selection in the UV spectrum are little understood but both the abiotic (UV irradiance) and biotic (pollinator) environment likely impact floral UV traits. To address these gaps, I asked the following questions for two subspecies of the widespread herb, Argentina anserina: 1) To what degree does the area of floral UV absorption relative to total flower size vary? 2) Is there clinal variation along a gradient of ambient UV radiation, and 3) Does the relative area of absorption vary with flower age? UV Proportion (UVP, area of UV absorption/total flower area) ranged form 30% to 100%. UVP varied significantly among subspecies, among populations, and within populations. In both subspecies sampled, UVP increased with increasing ambient UV radiation suggesting that the UV environment could select for greater UVP. Flower age did not influence UVP, so the variation detected in the field likely reflects genetic and/or macro environmental variation, rather than developmental variation. This is the first rigorous description of variation in UVP for any wild species. Since ambient UV is on the rise globally, this work may help to predict phenotypic shifts in floral UV characters in response to this change. How floral UV variation impacts pollinator-mediated fitness is an important next step for this research.

Gerardo Arceo, Biological Sciences

Long Live the Flower: Increasing Flower Longevity with Increasing Community Diversity

co-Author: Tia-Lynn Ashman

Co-flowering community diversity can influence the incidence and magnitude of pollen limitation of seed-set either through pollinator competition and/or interspecific pollen transfer. However, how selection on floral traits changes with increasing community diversity is still unclear. Pollinator-mediated selection can act on floral traits that enhance pollinator visitation and increase pollination opportunities such as floral display, flower size and flower longevity (hereafter FL). To address this we grew Mimulus guttatus plants from 23 populations in the greenhouse and revealed a significant positive

correlation between population mean FL and in-situ co-flowering species richness. Long FL may be important in diverse communities because increasing the time a flower is exposed to pollinators will result in greater opportunities for conspecific pollen deposition. To test this adaptive hypothesis we conducted a reciprocal transplant experiment in two low and two high diversity communities. We recorded FL, conspecific pollen deposition and seed production in 30 M. guttatus plants from each population. We showed that FL is determined by the source population and not the pollination environment at the site. Furthermore, we found higher conspecific pollen deposition and seed production by flowers of plants from high compared to those from low diversity sources when growing in high but not low diversity sites. These results suggest an advantage of long FL at high diversity sites only. This study is the first to test the prediction that community context, i.e., species richness, represents a distinct selective environment that mediates selection on floral traits.

Karen Ricardo, Chemistry

Surfactant-free Exfoliation of Graphene in Aqueous Solutions

We report a surfactant-free method to produce graphene dispersions in water. The graphene sheets are stabilized by adsorbed OH- ions. AFM and TEM analysis shows that the graphene flakes ranged from 50 to 300 nm in size and are from 5 to 20 nm in height. The concentration of graphene in the solution is ~ 0.02 mg/mL, which is comparable to results obtained using surfactant-based methods. This environmentally friendly method has great potential to produce graphene sheets for a wide range of applications.

Benjamin Robinson, Economics

Brownfield, Greenfield: A Hedonic Estimation of the Remediation and Redevelopment of the Slag Heap at Nine Mile Run

The development of Summerset at Frick Park, a residential community built on top of a slagheap on the Nine Mile Run watershed in Pittsburgh, Pennsylvania provides a unique case of brownfield redevelopment that also mirrors the region's economic history. Using real-estate sales data from Allegheny County, this paper develops a hedonic price model to evaluate the factors that influenced changes in real-estate values in areas near the development, specifically the interactions between distance and the timeline features for sales near the development. Results show that a significant and substantial announcement effect occurs which varies inversely with measures of closeness to the brownfield site.

Zachary Reinert, Eli D. Musselman, Adrian H. Elcock, and W. Seth Horne, Chemistry

Biocompatible Polymer as a Backbone Replacement for Surface-Exposed Protein Loops

We report here that discrete oligomers of polyethylene glycol (PEG), a simple biocompatible polymer, can replace natural peptide segments in the backbone of a protein with a well-defined tertiary fold. Biophysical characterization of several chimeras of the protein GB1 coupled with molecular dynamics simulations show that PEG can enhance local backbone torsional freedom without compromising the overall protein fold. Our results provide a chemical tool to probe hypotheses about backbone flexibility and a method to render surface-exposed loops inert to degradation by proteases.

Redha Mohammad, Geology & Planetary Science

Using Thermal Infrared (TIR) Data to Characterize Dust Sources, Dust Fall and the Linkage to Climate in the Middle East

Prior to mineral dust deposition affecting albedo, aerosols can have direct and indirect effects on local to regional scale climate by changing both the shortwave and longwave radiative forcing. In addition, mineral dust causes health hazards, loss of agricultural soil, and safety hazards to aviation and motorists due to reduced visibility. The current research focuses on Kuwait and utilizes a comprehensive set of spatial, analytical and geological tools to characterize dust emissions and its radiative effects. Surface mineral composition maps for the Kuwait region were created using ASTER images and GIS datasets in order to identify the possible sources of wind-blown dust. Backward trajectory analysis using the Hybrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) model suggests the dust source areas were located in Iraq, Syria, Jordan and Saudi Arabia. Samples collected from three dust storms were analyzed through a combination of X-ray fluorescence (XRF), Scanning Electron Microscopy (SEM) and TIR emission spectroscopy for their mineral composition and to validate the dust source areas identified by the modeling and remote sensing analysis. The overarching objective of this ongoing research is to both characterize the effects of mineral dust on climate as well as establish a predictive tool that can identify dust storm sources and potentially aid in establishing a more accurate prediction and warning system in the Middle East region.

Debamitra Das, Biological Sciences

Investigating the Implications of Shroom: Rock Interactions in Cell Shape Change and Behavior

Cellular morphogenesis is an outcome of cytoskeletal reorganization in a spatially restricted manner. Shroom, a class of Actin-associated proteins have been implicated in regulating cell and tissue architecture via activation of non-muscle Myosin II. This activity is restricted to its evolutionarily conserved motif, Shroom Domain 2(SD2) that binds directly to the Shroom Binding Domain(SBD) of Rho-kinase(Rock). Rock then activates MyoII contractility by regulating the phosphorylation status of Myosin light chain and brings about change in cell shape. In order to map this Shroom-Rock interaction, information from the genome wide mouse ENU mutagenesis screen was utilized. It has been found from the screen that a highly conserved Arginine residue in the SD2 domain of Shroom when mutated to Cysteine causes neural tube closure defects like exencephaly and spina bifida. Also this full length mutated Shroom protein fails to cause apical constriction in polarized MDCK cells when ectopically expressed. I created Shroom SD2 R/A and R/C mutants in both mouse Shroom and Drosophila Shroom. These SD2 mutants were tested in various biochemical and cell based assays to determine the importance of this residue in Shroom-Rock interaction. My results demonstrate that this residue is important for Shroom-Rock interaction as well as eliciting apical constriction in MDCK cells. These residues however do not interfere with Shroom dimerization and thus do not disrupt Shroom structure. A crystal structure of the mutant proteins is underway and it will provide a better understanding of the position and importance of this residue in the Shroom SD2 domain.

Panel 1a: Media Forms, Society, and Identity

Lisa Dolasinski, French & Italian

Fiction Film: Melodrama as Artillery in the War against the Mafia

The post-industrial world provides instant access to media coverage of traumatic events; however, the fast-paced transmission of violence has impaired society's ability to process the disseminated message. In response to this trend, Italian directors have undertaken the 'impegno' of producing anti-mafia films which allow viewers to better grapple with mafia violence. Although directors who belong to this tradition such as Francesco Rosi and Giuseppe Tornatore advise that their films are not meant to document historical events, these directors do argue that through fiction one can reproduce the real sentiments produced by mafia violence. According to Gilles Deleuze (Cinema 1: The Movement-Image 1983; Cinema 2: The Time-Image 1989), emotions can intensify only when visual and verbal speeds slow down; therefore the film becomes almost static during the climax. Evoking Gramsci, Marcia Landy (Film, Politics, and Gramasci 1994) agrees, observing that, whenever a director simulates tragedy the scene and the dialogue are slowed down so that the spectator has time to process what he has seen and produce the collective emotion shared by all viewers. According to Landy, melodrama is the ideal genre to initiate a revolution against the mafia because it requires the spectator to reflect on and redefine the folklore of the past. Both films that will be analyzed, Le mani sulla città (Rosi, 1963) and Il Camorrista (Tornatore, 1986) not only filter the representation of the mafia, they are melodramatic in terms of their liberal use of music and emotionally-driven plots. With the utilization of extreme close-ups, foreboding leitmotifs, and panning shots of Italians imprisoned by mafia infrastructure, mafia presence is sensationalized and the film viewer recognizes that he is watching fiction. Although the spectator's screening is not objective, through the fictionalization of mafia violence, film viewers—Italian citizens—can recognize their own social reality and react to it.

Laura Caton, German

Emotional and Emancipated Men: Depiction of Gender in "Der bewegte Mann"

The works of German comic book artist Ralf König have enjoyed widespread popularity, in part because of their humorous, satirical, and poignant exploration of sexuality and gender. His most famous book, "Der bewegte Mann," was adapted into a hugely successful film in 1994. "Der bewegte Mann" chronicles the misadventures of an attractive heterosexual man, Axel, as he attempts to cope with a bad breakup from his girlfriend. This attempt leads Axel into an odd—and enlightening—cohabitation with a group of homosexual men, with whom he remains friends until his girlfriend agrees to take him back. Despite its popularity, however, the book "Der bewegte Mann" rarely has been analyzed by critics, who tend to concentrate instead on its film adaptation. My paper seeks to remedy this discrepancy by focusing solely on the comic book and, specifically, its depiction of gender. "Der bewegte Mann" presents a fluid view of gender suggesting that, regardless of biological sex, all characters have the capacity to perform in stereotypically masculine and feminine ways, a capacity influenced by social expectations and situational context. Furthermore, the book depicts gender performances shaped not only by the pursuit of a character's desirable gender, but by the avoidance of the undesirable gender. Through an analysis of three key panels in the comic book, this exploration of gender ultimately sheds light on the ambiguous title of "Der bewegte Mann," which can be translated as either "The Emotional Man" or "The Emancipated Man."

Rachel DeSoto, Theatre Arts

The (Female) Bodies of Juárez: Staging Violence in Marisela Treviño Orta's Braided Sorrow

Depictions of the femicide in Ciudad Juárez have been more recently featured through artistic representation as an alternate form of political activism. Such depictions raise larger questions on how best the magnitude of this violence can be represented in art without mitigating the lived experience of the female victims. This paper argues that performance offers the most possibility its ability to connect staged bodies with audience bodies through performance. Drawing on playwright Marisela Treviño Orta's 2005 play Braided Sorrow, this poetic piece on the women of Juárez presents an alternate face to the imagery of this narrative of violence by drawing on Aztec mythology. This paper contends that Braided Sorrow presents an example of staging the narratives of Juárez in a way that maintains a voice for the absent bodies of the female victims while engaging in a critical conversation with audiences without marginalizing that experience through mediations of violence or traumatizing spectators/actors through the live representation of violence.

Olga Klimova, Slavic

Visualizing Post-Stalinist Youth: The Change of Ideological Climate and the Genre of Soviet Youth Films

In American culture, the influx of so-called "teen pics" by Laslo Benedek, Nicholas Ray, Paul Wendkos, and William Asher took place in the 1950s through the 1960s, partially due to the decreasing censoring power of the Motion Picture Production Code. In Soviet cinema, the themes of teenage delinquency, sexual relations between young characters, and their attempts to segregate themselves from the adult world arrived much later. Most film scholars agree that the rebellious teenager is a popular character of Perestroika cinema. Nevertheless, the predecessors of these young characters, who question the values and beliefs of adults, already appeared in Soviet cinema under Khrushchev and Brezhnev. Unlike American teen films, the Soviet equivalent developed under distinct ideological conditions with the reinforced censorship system. In my paper, I argue that a growing interest in youth films among Soviet filmmakers during the period of so-called "developed socialism" was ignited by a necessity to express dissatisfaction with the political and social order in the country under the condition of intensified censorship. I study the development and the specific narrative and cinematic characteristics of the genre of Soviet youth films in the context of changes in the social, economic, and ideological situation in the Soviet Union after Stalinism.

Panel 1b: Considering the Self and Consciousness

David Wright, Theatre Arts

Prospero's Magical Circle: Metatheatrical Explorations in the Alteration of Self-consciousness in Shakespeare's "The Tempest"

That each of us has an idea of ourselves and that we can understand the conscious, mental process of others are ideas that cognitive scientists and philosophers of mind have wrestled to understand. Are they also ideas that Shakespeare may have wrestled to understand as he formulated a metatheatrical understanding of his craft and the impact of the theatre on his audience? This paper argues that in "The Tempest" Shakespeare metatheatrically explores the phenomenology of self-conscious experience in the theatre. In the play, Shakespeare argues that theatre can have a lasting impact on one's consciousness and sense of self. The conclusions he reaches are congruent with contemporary phenomenological and cognitive-science based conceptions of consciousness and self-consciousness.

Kathryn Tabb, History and Philosophy of Science

Reasoning with Madness: Charles Darwin on Human Nature

It is widely recognized that Charles Darwin upended contemporary concepts of human nature by showing that humans, like animals, were the product of evolution. This paper argues that a revision of traditional notions of human rationality was, in fact, a prerequisite for the development of Darwin's theory, rather than simply a corollary of it. Examining Darwin's early reflections on instinct during his so-called "Notebook Period," I argue that Darwin drew heavily on the associationist school of psychology in order to formulate his theory of inherited mental characteristics. Associationist theorists posited that the mentally ill differed in degree rather than kind from sane people, and replaced classical theories of the rational agent with an embodied theory of distributed cognition. Under the associationist model, the mentally ill misassociated ideas, and thus acquired corrupted chains of irrational thoughts. It was these pathological chains of ideas, rather than a dysfunction of any faculty of reason, that led to mental illness. Combining this theory with an embodied view of the mind (borrowed, I argue, from his phrenologist contemporaries) Darwin was able to construct a theory in which unconscious thoughts, feelings, and behaviors could be acquired and inherited across generations. By integrating associationist views into the very foundations of his theory, Darwin struck a blow against faculty theories of mind, which considered rationality to be a God-given trait that was present in (most) humans and lacking in animals. Implicitly, this blow resonated throughout the nineteenth century and beyond, and evolutionary theory ultimately championed a vision of self that can be traced back to John Locke – of the human not as the rational animal, but the animal with a memory of his own past.

Marcus Adams, History and Philosophy of Science

Maker's Knowledge and Underdetermination in Hobbesian Natural Philosophy

Despite numerous criticisms of Aristotelian philosophy, Thomas Hobbes agreed with Aristotle that to have scientific knowledge one must have causal knowledge. However, Hobbes's account of how one acquired causal knowledge differed greatly from Aristotle's account, since he held that causal knowledge was available only to those who had acted as makers for a phenomenon, i.e., those with maker's knowledge. Hobbes thought that individuals had such causal knowledge when they constructed geometrical figures or commonwealths but that natural philosophers did not when explaining natural phenomena. If Hobbesian maker's knowledge were limited only to geometry and civil philosophy, as some have argued, then the scope of scientific knowledge would be incredibly narrow, so narrow that it would fail to solve the problem which I argue Hobbes meant it to solve. As a result, in this paper I argue that Hobbes never confined his account of maker's knowledge in this way but instead held that those who constructed conceptions in first philosophy had maker's knowledge as well. First, I argue that Hobbes appealed to maker's knowledge to buttress his natural philosophy against the threat of skepticism about scientific knowledge. Maker's knowledge was Hobbes's response to a worry that the actual causes of any given natural phenomenon were vastly underdetermined, a worry which Hobbes discussed frequently. Second, I explore how makers have causal knowledge when constructing geometrical figures and when constructing conceptions in first philosophy. I examine the two steps that for Hobbes were involved in acquiring scientific knowledge: first, knowledge of particular causes from a construction; and second, knowledge of general causes from making a definition on the basis of the construction in the first step. Finally, I show how explanations in Hobbes's natural philosophy made use of this maker's knowledge from geometry and first philosophy, examining an explanation from Hobbes's optics.

Jasmin Özel, Philosophy

Attention, Consciousness, and William James's Discussion of Epiphenomenalism

Contemporary philosophers of mind, psychology, and neuroscience fiercely debate the role that attention could play for consciousness. They are interested in questions such as: Is it possible for us to consciously perceive an object that we don't attend to? Is attention necessary for consciousness? Is it maybe also sufficient? Should we thus perhaps understand attention as the necessary and sufficient mechanism by which perceptual representations become conscious? Does attention help alleviate insufficiencies of the perceptual processing system, and if yes which ones? Which are the criteria according to which attention chooses the perceptual representations that it brings to consciousness? Are these criteria set by the perceiver herself or maybe rather by natural selection? And to which extent is sensory input to the perceptual processing system already processed when attention comes into play? My paper treats the historical background of the current debate about consciousness and attention. It attempts to explain its rather unexpected origin in William James's discussion of epiphenomenalism, and points out fruitful aspects in James that have hitherto been neglected. The main focus lies on questions that have recently been raised by Prinz and Schwitzgebel, in particular whether we should hold the so-called "abundant" or the "sparse view" of attention, and related issues like for instance: Does attention help alleviate insufficiencies of the perceptual processing system? According to which criteria does attention choose the perceptual representations that it brings to consciousness? Does attention serve some purpose for consciousness that is set by natural selection? To which extent is sensory input to the perceptual processing system already processed when attention comes into play? I will ultimately argue that we can respond to these questions without committing ourselves to either side in the debate about epiphenomenalism.

Panel 1c: Exploring Identity and Society in Art, Film, and Music

Jiayao Han, History of Art & Architecture

Uneasy Paradise: The Adoption of Enemy Customs and Trappings in Noble Tombs of the Zhao State (386-228 BCE)

This paper focuses on the blending and adoption of non-Chinese/non-local stylistic features and the hybrid burial practices in elite tombs of the Jin and its succeeding Zhao states in the Northern Frontier (current-day Great Wall region) in Eastern Zhou China (771-221 BCE). These include: gilded plaques decorated with paired dragons and bronze daggers with a scene of animal combat, all based on elements from both Chinese and Eurasian prototypes. Why, in a period when these Chinese states engaged in frequent wars with pastoral groups, did their elite tombs contain objects shaped and/or decorated in ways that were associated with their enemies? Rather than basing my approach on the stylistic term "hybridity" in previous scholarship, I look at different theories and models such as diffusion, migration, and trade as well as the historical and socio-political dynamics that brought about the phenomenon of changes in the layout, content and decoration of artifacts and tomb structures of these elite Chinese tombs. I argue that the adoption of alien aesthetics reveals the effort of Zhao elites to create a fluid identity at the time of their death, one which was well suited to their political position in the militarized Northern Frontier. I also suggest a modification of the term "hybridity," which should be understood as a process and practice anchored in burial practice related to expressions of self-identity for the Zhao in Eastern Zhou China.

(Denise) Nicole Pollentier, History of Art & Architecture

The Emergence of SÚM: Collective Art Practice in Iceland, 1965-1978

SÚM was a loosely affiliated artist's collective that was founded following a 1965 self-organized exhibition of works by Jón Gunnar Árnason, Hreinn Friðfinnsson, Sigurjón Jóhannsson, and Haukur Sturluson. This exhibition marked the first break with the government-sponsored Union of Icelandic Artists and their primarily abstract style. While the work of SÚM's members varied widely – showing a range of influences including Pop, Minimalism, Conceptualism, Arte Povera, and Fluxus – the artists involved shared an affinity for questioning the material nature of the art object, challenging social and artistic conventions within Iceland, and connecting with new art movements abroad. In 1969, the group established its own gallery, where in addition to exhibitions, they hosted happenings, performances, discussions, and film screenings, showing work by both local and foreign artists. The activities of SÚM instigated a destabilization of the nascent art world in Iceland and provoked public outcries that ranged from perplexed to outraged. Since pieces by SÚM members were routinely excluded from the national collection, in 1978, when the collective had largely dissolved, a group of artists founded the Living Art Museum, primarily to preserve SÚM works. Today, most young artists are members of the Living Art Museum, which extends the legacy of SÚM by stimulating artistic exchanges and encouraging the production of experimental art. In this talk I will discuss the emergence of SÚM, provide a brief overview of the group's major projects, and examine how the collective practices of its members provided a critique of the political and cultural environment of the 1960s and 70s. I will consider the lack of scholarly attention that SÚM has received and the unique challenges that assembling a history of the group presents, despite its significant position in the history of Icelandic art.

Christiana Molldrem, Theatre Arts

Dragging Mexico: Astrid Hadad's Performance across Borders

What does it mean to drag a national identity? When we think of drag performance it is often gender identity that is deconstructed and remade. Gender identity and National identity are both types of social constructs. As Benedict Anderson puts it in Imagined Communities "nation-ness, as well as nationalism, are cultural artifacts of a particular kind. To understand them properly we need to consider carefully how they have come into historical being, in what ways their meanings have changed over time, and why, today they command such profound emotional legitimacy (4)." Since both gender and nation-ness are social constructs, it follows that both types of identity could be deconstructed through similar performance techniques. Mexican cabaret performer Astrid Hadad utilizes aesthetics and performance techniques shared by drag performers to drag Mexican national identity both inside and outside of the Mexican border. Aesthetics construct a great deal of the meaning in drag, and Hadad's aesthetics are no exception. Using an iconography of Mexican culture with a Camp (as roughly defined by Susan Sontag) aesthetic Hadad deconstructs what being Mexican means and challenges traditional ideas of Mexican-ness. Her performances are intended for both for those who identify with her performed identity (Mexico) and for those who are outside of it. The meaning is different across the borders, but is still effective in repositioning ideas of Mexico. What meaning does Hadad make, and how is she able to construct it? This paper will deal specifically with how Hadad's performance drags Mexico through her music video for the 25th anniversary of her song "El Calcetin." Since this video incorporates the aesthetics of Hadad's 25 years of experience, and her performance here references the iconography of many of her other songs it is a useful example of how Hadad drags Mexican identity.

Stephen Hager, Music

Wacongo Dance Company: The Ethics and Aesthetics of African Music and Dance Performance in Pittsburgh

Wacongo Dance Company is an ensemble of musicians and dancers from the Democratic Republic of Congo which performs "the ancestral songs and dances of Central Africa" in the United States. Combining diverse approaches, from staged and improvised presentations to didactic group instruction, Wacongo's performances take place in a variety of settings in Pittsburgh, Pennsylvania. Whether performing for a charity fundraising event or a community educational workshop, Wacongo emphasizes the value of audience participation, and makes it a point to involve the audience in each event to the greatest extent possible. Drawing from ethnographic data collected from participation and observation of performance events and interviews, I interrogate the role of ethics in Wacongo's performances of African music and dance in Pittsburgh. By ethics, I am referring to the practices by which performers make choices of moral and aesthetic values (i.e. what is morally and aesthetically right or wrong) and thereby become recognized as good performers by the African music community. In Wacongo Dance Company, a good performer is one who enacts an ethical attitude that values communal participation over a strict division between performer and audience. I document scenes from concerts and workshops which demonstrate the way in which Wacongo's ethical attitude informs the ensemble's aesthetic and discursive practices. I ask what it means for Wacongo's ethical practices to be discursively marked as African, and finally, to what extent is the ethical attitude inclusive or exclusive of the Pittsburgh community born outside of Africa.

Panel 1d: Quantitative Explorations in the Sciences

Shonali Dhingra, Physics and Astronomy

Quantum Interactions of a Nanomechanical Oscillator with a Single Spin

Quantum mechanics has been well-tested at atomic scales, in optical and electronic systems. In recent years, there has been significant interest to demonstrate that quantum mechanics also applies to mechanical systems. We are trying to verify this by studying the interactions between a nanomechanical oscillator (NMO) and a single spin. In our system, the NMO is coupled to the electronic spin of a Nitrogen-Vacancy (NV) center in a nanodiamond through a uniform external magnetic field. To heighten the oscillator's quantum nature it is fabricated out of very thin films, cooled down much below room temperature and is put in high vacuum. It is made to oscillate using a piezo-electric material, and the resonance frequency of its forced damped oscillatory motion is monitored optically using lasers. We expect to see a change in the resonance frequency of the NMO whenever there is a flip in the spin of the NV. Conversely, we expect to see a flip in the spin state of the NV whenever the oscillator's energy changes. This would be proof of the quantum nature of the spin and the oscillator respectively. A quantum mechanical analysis of the interaction, and preliminary fabrication and detection results, are presented here.

Xiaopeng Li, Physics & Astronomy

Time Reversal Symmetry Breaking of p-orbital Bosons in a One-dimensional Optical Lattice

We study bosons loaded in a one-dimensional optical lattice of two-fold p-orbital degeneracy at each site. Our numerical simulations find an anti-ferro-orbital p$_x$+ip$_y$, a homogeneous p$_x$ Mott insulator phase and two kinds of superfluid phases distinguished by the orbital order (anti-ferro-orbital

and para-orbital). The anti-ferro-orbital order breaks time reversal symmetry. Experimentally observable evidence is predicted for the phase transition between the two different superfluid phases. We also discover that the quantum noise measurement is able to provide a concrete evidence of time reversal symmetry breaking in the first Mott phase.

Tracy Stepien, Mathematics

Stretch-Dependent Proliferation in a One-dimensional Elastic Continuum Model of Cell Layer Migration

Collective cell migration plays an important role in maintaining the cohesion of epithelial cell layers and in wound healing. Disruption of cell migration can cause disease such as necrotizing enterocolitis, an intestinal inflammatory disease that is a major cause of death in premature infants. A recently developed mathematical model of cell layer migration during experimental necrotizing enterocolitis based on an assumption of elastic deformation of the cell layer leads to a generalized Stefan problem. The model is here extended to incorporate stretch-dependent proliferation, and the resulting partial differential equation system is solved analytically and numerically. We find that a large class of constitutive equations for the dependence of proliferation on stretch leads to traveling wave solutions with constant wave speed.

Priyanka Upadhyai, Biological Sciences

Why do Transcriptional Repressors Recruit more than One Corepressor?

Every cell in a multicellular organism carries the same genetic information but only a subset of these genes are expressed – transcribed into RNA – in each cell type. Gene expression is regulated by specific proteins, regulatory transcription factors, that bind to specific sequences in DNA adjacent to the genes they control. These factors promote or antagonize transcription, acting as activators or repressors, respectively. Repressors function primarily by recruiting accessory proteins known as corepressors (CoRs) that antagonize transcription. Although theoretically recruiting a single CoR might be sufficient for a repressor to function, many, including the Drosophila protein Brinker, recruit multiple CoRs, with Brk recruiting CoRs, CtBP, Groucho (Gro) and additionally possessing a third independent repression domain, 3R (of unknown function). We are using Brk as a model to dissect why repressors recruit multiple CoRs. To this end we have generated a series of brk mutants in which the protein cannot recruit either Gro and/or CtBP and/or the 3R domain is deleted. Analysis of these mutants revealed that Gro is essential for Brk activity: if Brk cannot recruit Gro, embryos die with a phenotype only slightly less severe than complete loss of Brk. Gro, however, is not sufficient alone for full Brk activity, because most mutants in which Brk can recruit Gro but not CtBP and have the 3R domain deleted die as embryos; these mutants also show defects in oogenesis. Why is Gro not sufficient? Although Gro is ubiquitously expressed, its activity is downregulated in cells where receptor tyrosine kinases are activated, as occurs during embryogenesis and oogenesis. We are currently testing the hypothesis that Brk may have to recruit more than one CoR because its primary CoR, Gro is not functionally available in specific cells in the embryo and ovary, and in these situations CtBP and/or 3R are employed to compensate.

Panel 2a: Psychological and Philosophical Considerations of the Body

Peter Distelzweig, History and Philosophy of Science

Sensation and Locomotion in Aristotle, Fabricius and Harvey

For Aristotle animal motion and sensation are tightly connected, particularly by cooperating in characteristic animal activities, such as seeking nourishment or fleeing dangers (MA 6-11, DA III 10-13). Such activities, as means to or parts of the expression of animal natures, are that for the sake of which an animal has cooperating perceptual and locomotive organs (cf. DA III 12 434a31-b28). Therefore scientific inquiry searches for correlations between variations in these organs, correlations to be explained teleologically by reference to variations in animal natures.
Thus, in an Aristotelian science of animals, comparative study of the physiology of animal motion is tightly connected to that of animal sensibility. Both this connection between an animal's nature and its modes of locomotion and perception and Aristotle's comparative method had a profound influence on such medical Aristotelians as Hieronymus Fabricius ab Aquapendente and William Harvey.
In this paper we will first characterize the tight connections between differences in locomotive physiology, sensory physiology, and animal natures, arising from Aristotle's theory of inquiry and explanation. We will then look at the impact of these ideas on Fabricius' published works on locomotion and muscle and bone anatomy and on Harvey's unfinished working notes on the subject, and how these medical Aristotelians thus frame the comparison of human and animal sensibility.

Kristina Swanenberg, Psychology

Catching Cheaters: Cheating as a Special Case of Deception Detection

Research by social psychologists consistently finds that people are poor at detecting attempted deception by others. However, Tooby and Cosmides have argued and shown that humans have evolved a special "cognitive module" for detecting cheaters. Their research suggests that people are good at detecting cheating by group members. These two literatures seem to be at odds with one another. The hypothesis of this research was that when participants are told a lie by a fellow group member whose attempted deception involves cheating on a task that affects their outcomes, they will be good at detecting deception. In this experiment, participants played blackjack in groups using a social dilemma paradigm. Participants' outcomes were either interdependent or independent with a confederate's outcomes. It was predicted that participants whose outcomes were interdependent with the confederate would be better at detecting deception by the confederate than those participants whose outcomes were independent from the confederate's outcomes. Results indicate that when judging other participants' lies interdependent players were more successful at deception detection than independent players but were not more sensitive to the lies. This effect may be driven by the truth bias, people assume that their interaction partners are truthful which would explain why sensitivity measures (which remove response biases) did not show the hypothesized effect. Independent players were not more successful or sensitive when judging the confederate's lies. Overall success rates support this idea because they were significantly higher than success rates reached by most deception detection research (50%) which may be indicative that both participants cheating detection modules were active. Results also indicate that as the number of lies told increases overall success decreases but success at detecting lies and sensitivity increase. Thus the more lies that are told the better people are at catching them.

Lauren Ross, History and Philosophy of Science

Value, Dysmenorrhea and The Definition of Disease

Two main philosophical positions contrast the role of value in the definition of disease. The descriptivist position, championed most influentially by Christopher Boorse's biostatistical theory

(BST), claims that the definition of disease should be value-free, an "objective matter" that can be read, more or less, from the scientific facts of nature. The opposing normativist position asserts instead that this definition should involve value, although many different philosophers have widely different conceptions of how exactly it should. I argue that the Boorsian theory fails to provide a definition of disease that accounts for dysmenorrhea, a disease of severe pelvic pain with menstruation. According to Boorse's BST an organism is diseased if and only if it experiences subnormal function, with regard to its species, age-group and sex, which impinges upon the organism's survival or reproductive fitness. The example dysmenorrhea not only fails to fit the BST's analysis in that it lacks dysfunction and does not reduce survival or reproductive fitness but it also undermines the rationale for that analysis in that its treatment (hysterectomy) diminishes the patient's survival and reproductive fitness, and does so far more than the disease itself. Second, I argue for the normativist position in maintaining that the definition of disease must include at least some value because, as demonstrated by the example of dysmenorrhea, it encompasses the notion of suffering—a subjective experience of the patient. Suffering is value-laden because it depends on the patient's judgment of her condition (its effects on daily life, severity, etc.) and personal preferences (longevity, quality of life, etc.).
My assessment of "value", in the definition of disease, refers to a subjective assessment of worth made by an individual or collective, and as such, depends on their judgments or preferences. Values are often juxtaposed to objective or empirical scientific facts which, through detached scientific experimentation, provide descriptions of ourselves and our world. Of course whether there is a sharp fact-value distinction is controversial; my argument requires that only a rough distinction of this sort exists and I will not broach the controversies related to the topic.

Jessica Ansel, Psychology

Lifetime Exposure to Job Strain and Its Effects on Ambulatory Blood Pressure

Job strain, defined as the simultaneous presence of high demand and low decision latitude in the workplace, has been shown to be associated with increased risk for hypertension and cardiovascular disease. Previous research has suggested that some of these effects may be cumulative, in that a history of job strain in the past has been shown to be associated with higher ambulatory blood pressure in men regardless of the circumstances associated with the present job. This study aims to test the residual effects of past exposure to job strain on blood pressure, and to confirm these effects of past strain exposure in a mixed-gender sample (n=481, ages 30-60). Participants completed a Work History Questionnaire (measure of job strain) for their 6 most recent jobs, and wore an ambulatory blood pressure monitor throughout 3 days of work. Job strain was assessed based upon the presence of high demand and low decision latitude, by self report, and job strain history was measured as total years of working life while experiencing job strain. Preliminary analysis indicate a significant association between history of job strain and blood pressure, but only for those with ≥25 years of work experience (systolic: F=5.10, p=.026, Beta= -0.469, Standard Error= 0.192; diastolic: F=8.02, p=.005, Beta=-0.329, standard error=0.116). No significant associations between blood pressure and history of job strain were found in the full sample. Further analysis are still being performed and a more complete interpretation of these findings will be reported at the conference.

Panel 2b: Diverse Studies in Identity, Community, and the Environment

Ronald Alfaro-Redondo, Political Science

Is Economic Voting Mediated by the Role of the State in Latin America?

Economic voting studies have appeared in abundance showing that the economy is a significant determinant of vote choice. Political scientists have accumulated a wealth of evidence regarding the link between economic performance and the electoral fortunes of incumbent governments. More recently, revisionists have claimed that integrating economic and political factors in economic voting models is likely to yield more comprehensive explanations of how citizens, their political environments, and the economy are related. In this paper I adapt and extend this assumption and examine how economic voting will be conditioned by levels of State support in the same context. I estimate a model in which economic voting factors and State's support interactively determine election outcomes. I hypothesize that when assessed in conjunction with the role of the State, economic voting is less salient in determining voting choice.

Inga Meier, Theatre Arts

The Conspirator, Brechtian Verfremdungseffekt, and Civil Rights in Post 9/11 America

Robert Redford's 2011 film, The Conspirator, collapses history to examine the role of cultural trauma in forging national identity. On a narrative level, the film details the trial of Mary Surrat (Robin Wright) – an alleged conspirator in the 1865 assassination of Abraham Lincoln – whose guilt is still debated by historians today. Redford conveys Surrat's story through a Brechtian Verfremdgseffekt, thereby formulating a critical distance through which viewers might understand and examine the questions raised by Surrat's trial and subsequent hanging: Is it permissible to sacrifice the rights of the individual in the name of the greater good? Can the ideals of the constitution be upheld in times of crisis? What are the rights of prisoners in times of war? Despite obvious parallels to to more recent traumatic events. However, despite these obvious parallels, both Redford and Wright have proven reticent when questioned by various interviewers to further expound upon their meaning. I propose that the unwillingness on the part of the cast and crew to explicitly examine the film's allegorical function is not simply a marketing strategy or an attempt to allow audiences to craft their own meaning, but rather a necessary prerequisite to understanding the film's Brechtian didacticism. Redford's examination of the aftermath of the Lincoln assassination should not be merely understood as a political allegory for the United States post 9/11, but rather as a modern form of epic theatre utilizing the events it depicts in a manner similar to Brecht's use of the Thirty Years War to elucidate the rise and effects of fascism under Adolf Hitler in his play, Mother Courage and her Children. This paper will thus examine Redford's The Conspirator through the Brechtian principles of the epic theatre and the Verfremdunkseffekt to explicate its staging of contemporary cultural trauma.

Kristina Hopkins, Geology & Planetary Science

Rerouting Urban Waters: A Historic Examination of the Age of Imperviousness

From the 1600's to the 1900's landscapes along the Eastern United States underwent dramatic changes, including transitions from forest to production agriculture and eventually urban development. Legacy effects from decisions on sewer and road infrastructure built during the early 1900's are emerging today in degraded urban waterways. Impervious cover is often a factor used to predict water impairment. However, does imperviousness age through the course of landscape evolution? This study reconstructs the history of imperviousness in the Panther Hollow watershed (147 ha, Pittsburgh, PA) to evaluate these changes. Factors examined include; (1) pipe and road network expansion, (2) buildout of neighborhoods and (3) changes in tree canopy cover. Historic maps we used to reconstructed the history of infrastructure networks in the basin. Main road and sewer infrastructure was completed by 1915 and remains relatively unchanged 100 years later. Housing construction lagged behind the

installation of infrastructure, with most houses being built after 1920. Tree canopy cover has experienced a net increase of 16.6% over the last 70 years. Due to the arrangement of sewer and road infrastructure, 50% of the drainage from the upper basin is diverted via inter-basin transfer to an adjoining basin and eventually re-routed to the sewage treatment plant. The diversion of such a large quantity of water robs the streams of both base- and storm-flows. Further, aging sewer infrastructure may be contributing water back into the basin due to exfiltration through cracked pipes and leaky joints. Watershed tree canopy also provides an important hydrologic service which would be overlooked by simply examining percent impervious cover. The maturing and expanding tree canopy can intercept, store, and evapotranspire a significant volume of water. This research shows examining the causal, mechanistic links between these systems can provide additional perspective on water impairments in urban landscapes.

Jeremy Woodruff, Music

An Audience of Performers: Subversive Sound in the Worker's Movement of the 1930s U.S.A.

The dynamics of theater in the music, and vice versa, in the 1930s labor movement were pushed to extremes in order to "engulf" the audience and to try to get them caught up in a spirit of revolt along side the performers. New technology of the day: radio, film and public sound amplification were often crucial to the immersive effect in these events. These theatrical media dynamics were also transferred to the public stage in labor battles. The powerful opportunity for spatializing sound posed by a mass of protesters was used adroitly to challenge the status quo in rural as well as urban settings. Spaces were occupied with sound in radical experimental ways in order to obtain victory through subverting or parodying normative performative situations. Confrontational sound used by labor organizers and singers on picket lines in the 1930s in the flash points of the North Carolina Mills and later in the General Motors plants in Flint, Michigan were directly related to innovations in theater and music of the time; from agit-prop groups like the Shock Troupe to the invention of method acting by the Group Theater, from the sound scenery of the Living Newspapers to the songs and plays of the labor schools which were a cradle of the American civil rights movement; the success of these trans-disciplinary sounds of protest, blurring the edges of art and life, comprised the most formidable tactics for societal change in labor's arsenal during this tumultuous period, and are one of the most inspiring stories in American history.

Panel 2c: Religion: Considering Texts and Contexts

Elizabeth Self, History of Art & Architecture

Preaching on the Margins: The Depiction of Outcasts in the Ippen Hijiri-e

The Ippen Hijiri-e (1299) is a set of twelve handscrolls documenting the religious life and beliefs of Ippen (1234-1289), itinerant monk and founder of the Ji Sect of Pure Land Buddhism. The scrolls are unique for the inclusion of more than one hundred outcasts, or hinin (non-persons 非人). In 14th-century Japan, outcasts were often despised and discriminated against because of their disregard for Buddhist proscriptions against killing. Located outside of the mainstream social order, outcasts were relegated to the periphery of society, and forced to make their homes in marginal spaces like dry riverbeds, roadsides, and shantytowns. In this presentation, I will investigate how depictions of outcasts function within the Ippen Hijiri-e. Why did the creators of the Ippen Hijiri-e choose to include so many outcasts, and what purpose did they serve? Drawing on both historical sources and visual analysis, I will detail

where outcasts were located in the scrolls, and what part they played in the story of Ippen's life. I will also trace the reasons, both religious and secular, that may have motivated the Ippen Hijiri-e's creators to include outcasts. Although scholars have often commented on the unusual number of outcasts in the Ippen Hijiri-e, they have not been closely examined in English-language scholarship. Yet the large number of outcasts and the clarity with which their lives were depicted make their importance clear. In pre-modern Japanese art history, the focus is often on the powerful and rich, who leave behind architecture, painting, and literature. But the dispossessed, like the outcasts in the scrolls, leave behind few traces in history. A close study of the Ippen Hijiri-e is one way to learn about the lives of these discriminated-against groups.

Lianghao Lu, Religious Studies

The Taiping Rebellion's Influence on the Chinese Bible

As the first rebellion movement under the Christian flag, the Taiping rebellion played a significant role in modern Chinese history. However, despite of its name, the God Worshipper Society, there are many signs and evidence suggesting that the rebellion was not under the pure Christian faith. In this paper, I will use the Chinese Bible as a thread, examining the situation of its printing, publishing and spreading in the perspective of history of book to explore the very character of the Taiping Rebellion. By presenting the historical material of literati's articles, western missionaries' records, reports from the Qing government, I put up a general picture of how the Taiping Rebellion treated its texts, including the Chinese Bible, and then prove that the rebellion leader had his own ambition that he tried to break the bondage of the Bible and gained absolute religious authority by expunging, adding commentary and finally standardizing new Scripture alone with the Bible. Therefore, from such evident I conclude that the Taiping Rebellion only took the cosmological shell from Christianity and tried to establishing a untraditional, which might be more egalitarian, feudalism dynasty as those existed in Chinese history. In the end, I also examine the effect of Taiping's Chinese Bible on the Christian mission in China, which I interestingly found that the Chinese Bible itself has little effect in conversion, not even laid much foundation for potentials. Hence the Taiping Rebellion's influence is limited in terms of Christianity that it neither built nor destroyed the reputation of it.

Elizabeth Morrissey, History of Art & Architecture

Displaying the Hidden: Illustrating Secret Rituals in the Ishiyama-dera Illustrated Handscroll

Esoteric Buddhist traditions in Japan often center their practices on the concept of secrecy, both in doctrine and in the practice of certain rituals. This emphasis led to the restriction of certain ceremonies from the view and participation of outsiders, be they lay persons or the uninitiated of their own community. It would be understandably unusual to document one of these secret events in a visual medium, however, paintings of what appear to be two hidden rituals can be found in an illustrated handscroll form the fourteenth century entitled the Ishiyama-dera engi-e, or Illustrated Legends of Ishiyama Temple. The choice to hide some aspect of a painting from the viewer (and usually from certain figures within the painting itself) is not in itself unusual, but the choice to display an explicitly secret ritual as being hidden raises several questions. Why were these rituals included within this particular handscroll? Does their illustration reflect the actuality of the performance of secret rituals or do these paintings merely employ an artistic conceit, used to mask the artist's lack of personal experience with esoteric rituals? In order to answer these questions, this paper will analyze three

rituals depicted in the Ishiyama-dera engi-e, including an explicitly public Buddhist ceremony in addition to two secret rituals.

Emily Stewart, Religious Studies

Reading Technology and its Impact on Sacred Texts

Holding a printed book and eyeing nostalgically the towers of his cathedral, Archdeacon Claude Frollo mutters 'ceci tuera cela' – this will kill that. Frollo's perspective in Victor Hugo's classic The Hunchback of Notre Dame is, for many religionists, an easy one to sympathize with. One only has to "hold their smart phone while looking at a copy of Hugo's novel—or read Hugo's novel on our smart phones" to understand how Frollo felt. But this is only one attitude in an immensely wide field of responses and concerns that arise for readers when a new reading technology appears. This is especially the case for religious readers, who are reading the sacred texts of their traditions, and respond to the new technology in myriad ways. Just as scholars have studied the reception and reading practices of the religious during earlier transitions (scroll to codex, written to printed), it is imperative to study the influence of new technology on reading sacred texts due to the increasing prevalence of eBooks and online reading. This project aims to study the reception and reading of sacred texts in new formats, but will use the scholarship and research regarding earlier transitions to shed light on this one. A backwards glance at earlier transitions from scroll to codex and from written to printed type properly situates this new transition in history, and perhaps gives new insight to it. To understand and master "the electronic revolution of tomorrow (or today)" by situating it historically "permits us fully to appreciate the new possibilities created by the digitalization of texts, their electronic transmission, and their reception by computer."

Panel 2d: Understanding Money, the Market, and Mortgages

Tekin Kose, Economics

Price Convergence and Fundamentals in Stochastically Lived Asset Markets: An Experiment

We study price convergence in indefinitely lived asset markets with different fundamental value trends. By introducing increasing and decreasing fundamental value regimes, this study extends the knowledge on traders' 'incentives in stochastically lived markets. We employ various measures of price bubbles to analyze the effects of different treatments on the asset market outcomes. The experimental design allows us to make a direct comparison of market outcomes for definitely and stochastically lived asset markets. The experimental results also identify the effect of fundamentals on price convergence. The experimental data indicate significant undervaluation of the asset in increasing and decreasing fundamental value treatments for stochastically lived markets. The results differ across two constant fundamental value treatments. The transaction prices follow the fundamental value in the market with terminal value whereas the prices of the market without fundamental value are significantly less than the fundamentals. Thus, independent of the fundamental value, the transaction prices are significantly lower than fundamentals in stochastically lived markets without a terminal value.

Christopher Jones, Mathematics

The Mathematician and the Mortgage

In times of economic and housing uncertainty, mortgage refinancing is an essential topic. Any local bank abounds with advertisements exclaiming that now is the best time to refinance. But is now really "your" best time to refinance? I this talk I will discuss what it means to be a good time to refinance and explore when it is good to do so. While the approach of this study is mathematical in nature, this talk will be accessible to a broad audience.

Joseph Pleso, Computer Science

Distributed Formal Proof Certification

As solutions to mathematical problems appearing in the literature continue to grow in complexity, it becomes more and more difficult for human peer review to be 100% certain that a proof is correct. Mathematicians have already turned to computers to assist them in verifying formal proofs. However, these formal proofs are also growing in complexity such that the time it takes to check them is expensive. Thus, we aim to provide a solution to ensure that once we have checked such an expensive proof, that we record a certificate that demonstrates that the proof has, in fact, been checked. Obviously, such a certificate should only be able to be constructed after the proof has actually been verified. The aim of the talk is to discuss the construction of the certificate, which will utilize distributed computing techniques.

Torsten Jochem, Economics

Proxy Access & Shareholder Wealth - Evidence from a Natural Experiment

The financial crisis of 2008 and the subsequent 2010 Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) led to a revision of shareholder proxy access rules by the SEC in August 2010. Seemingly technical in nature, proxy access − the right for shareholders to nominate a candidates to a public firm's board of directors − lies at the heart of shareholder control and has far-reaching consequences in the balance of power between shareholders and managements.
We use the repeal of the new proxy access rules by the U.S. Court of Appeals as a natural experiment to determine the market's valuation of proxy access reform and its impact on overall shareholder wealth. Our analysis finds that the repeal of the proxy access reform resulted in a decline of valuations for plausibly entrenched firms, smaller firms in which investors could have made greater use of enhanced proxy access, and firms in which more investors qualified to make immediate use of greater proxy access. Further, the results indicate that the intended proxy access reform had rather weak effects: there are no valuation changes for large firms, firms that have just one of the anti-takeover provisions that are said to increase board and managerial entrenchment and firms in which no single investor could have made immediate use of greater proxy access. Finally, we find no evidence that the market expected special interest investors (union and pension funds) to be sufficiently empowered to be able to push through politically motivated, value-destroying policies. We conclude that the market valued proxy access reform positively, leading to an increase in shareholder wealth.

Panel 3a: Intersections between Space/Place and Identity

Sharon Quinsaat, Sociology

"Everybody around here is from some place else:" News Frames and Hegemonic Discourses in the Immigration Debates in the United States, 2006 and 2010

In 2006, the United States House of Representatives introduced a bill that seeks to criminalize unauthorized immigrants, subjecting them to detention and deportation. Four years later, the Arizona State Legislature passed a similar measure, which classifies an alien's presence in Arizona without the possession of proper immigration documents as a state misdemeanor. Both pieces of legislation entered the public sphere and stimulated debates on immigration, as cleavages within and among the Democrats and Republicans surfaced and opposition turned into highly publicized events. The bills crystallized the various hegemonic and contested discourses on immigration in American society. Using content analysis of The New York Times and USA Today, this study investigates the framing of immigration in two policy debates: on the Border Protection, Anti-terrorism, and Illegal Immigration Control Act of 2005 (H.R. 4437) in 2006 and on the Support Our Law Enforcement and Safe Neighborhoods Act or Arizona Senate Bill (S.B.) 1070 in 2010. Drawing on literature on media discourses, news frames, and framing process, I demonstrate that news frames are embedded in discourses about the relationship between immigration and the nation. Discourses reflect relationships of power, and depending on whether they are hegemonic or contested, they reinforce or question these relations. The news frames capture a range of perspectives, contingent upon their location in the spheres of contestation or hegemony. As the hegemonic discourses that give rise to these news frames are embedded in culture, they uphold the unthinking, taken-for-granted common sense of the people embodied in social relationships. On the other hand, contested discourses on immigration, specifically on the construction of the immigrant subject, stimulate the balance norm and are captured in news frames that attempt to present conflicting perspectives.

Josephine Landback, History of Art & Architecture

Breton's "The Song of the Lark": A Transcultural American Icon

One of the most enduringly popular paintings in the Art Institute of Chicago remains Jules-Adolphe Breton's _The Song of the Lark_ (1884). In its movement from Paris to Chicago, the painting's subject of a peasant girl in a field underwent a fascinating translation from nineteenth century French genre painting to an American icon. Reproduced in school primers and as decorations for Midwestern classrooms, the painting was used as a central symbol in two influential bildungsroman of the early twentieth century: Willa Cather's _Song of the Lark_ (1915) and Thomas Wolfe's _Look Homeward, Angel: A Story of the Buried Life_ (1929). In 1934, Breton's _The Song of the Lark_ was voted "America's Best Loved Picture" by readers of the _Chicago Daily News, and was displayed at the World's Fair. In this paper, I will examine the case of The Song of the Lark in its transnational shift from its French context to that of early twentieth-century America. In the two novels, I will examine how experiencing the painting in different contexts is used by Cather and Wolfe to stand for a complex identification with beauty in young American youths set in a rural environment. The painting's composition of a feminine figure in a complex conjunction of looking and listening surrounded by natural beauty was well suited to the different uses of the painting in public contexts central to the transformation of public American identity in literature and art history in the early twentieth century. In conclusion, addressing the transnational history of The Song of the Lark uncovers particular aspects of the knitting of art and identity in early twentieth century America.

Charles Lwanga, Music

Reconstructing East Liberty: Place, Race and Music at Ava and Shadow Lounges of Pittsburgh, PA

East Liberty is one of Pittsburgh's culturally diverse neighborhoods in the East end which in the 1960s, experienced the fear of losing larger merchants' businesses to some residents who moved to suburbs to establish small growing shopping malls which attracted a large number of customers. More than three decades later, the new redevelopment project saw the construction of shopping malls, whole food markets, bars, lounges, and diverse ethnic eating places among other projects, providing better and safer economic and social services to the people. To the detriment of low income earning families however, the majority being African Americans at the time, was the hiked cost of living, in particular, rental costs, which technically gentrified the community and thus, resulted into denial of business and access to money. Through the 7th redevelopment project however, Justin Strong started a brilliant project (The Ava and Shadow Lounges) near the pen circles, which not only attracted a diverse community of patrons but also, provided a sense of belonging through its diverse-interactive music schedule. With a concise historical background to East Liberty, followed by the analysis of Strong's project, this paper discusses how the interaction of place, race and music in a gentrified neighborhood create a sociological network through which the construction of a diverse community and a sense of belonging to the African Americans take place.

Donald Simpson, History of Art & Architecture

Civic Center and Cultural Center: Keywords for Architectural and Urban Planning History

While much has been written on the role that "the grouping of public buildings" played in American city planning at the dawn of the twentieth century, the keywords civic center and cultural center have never been critically examined to draw out their densely-coded ideological assumptions. Both terms enjoyed a limited use in the late nineteenth and early twentieth century in such diverse discourses as Social Christianity, American anthropology, and Cultural Zionism, but only took root in the urban imaginary in a binary opposition to one another, as architects and progressive social reformers sought solutions to overwhelming challenges facing the modern metropolis. The particular form and institutional composition of these monumental centers (the civic center as a grouping of governmental, administrative and judicial buildings anchored in downtown cores, and the cultural center as an educational and arts grouping set in more bucolic quasi-suburban parks) was shaped in part by opportunity and experimentation in several important cities simultaneously, but was profoundly directed by the conceptual, ideological, and poetic legacy embedded in each term. This paper explores the conceptual formation of the civic center and the cultural center prior to and in their emergence as the most important urban typologies in American urban planning in the last century and a half.

Panel 3b: Quantitative Approaches to Understand the Environmental Sphere

Michaela Kubacki, Mathematics

Uncoupling Evolutionary Groundwater-Surface Water Flows Using the Crank-Nicolson Leap Frog Method

Consider an incompressible fluid in a region flowing both ways across an interface, I, into a porous media domain saturated with the same fluid. The physical processes in each domain have been well studied and are described by the Stokes equations in the fluid region and the Darcy equations in the porous media region. Taking the interfacial conditions into account produces a system with an exactly skew symmetric coupling. Spatial discretization by finite element method and time discretization by Crank-Nicolson LeapFrog gives a second order in time partitioned method requiring only one Stokes

and one Darcy sub-physics and sub-domain solve per time step for the fully evolutionary Stokes-Darcy problem. Analysis of this method leads to a CFL-type time step condition sufficient for stability and convergence. Numerical tests verify this condition and predicted rates of convergence.

Alison Hale, Biological Sciences

Impacts of the Allelopathic Invader, Garlic Mustard, on Native Plant Carbon Acquisition and Allocation

The majority of native forest herbs (73%) form mutualisms with Arbuscular Mycorrhizal Fungi (AMF). The basis for the mutualism is a two-way exchange of resources: the plant provides AMF with carbon, while AMF use external hyphae to absorb mineral nutrients and water that are critical for physiological function of the plant. However, the recent invasion of garlic mustard (Alliaria petiolata) into forests may pose a significant threat to the functionality of AMF. We previously showed that garlic mustard produces allelochemicals that are toxic to AMF spore germination and hyphal growth. We now predict that long-term exposure to garlic mustard allelochemicals and AMF mutualism disruption will reduce physiological function and carbon acquisition in native forest herbs. Furthermore, because carbon from photosynthesis is utilized for growth, reproduction, and storage, we predict that garlic mustard treatment will alter carbon allocation patterns in native species. To test this hypothesis, we exposed Maianthemum racemosum plants to 1 of 3 treatments: dame's rocket leaf tissue (negative control), garlic mustard leaf tissue, or a fungicide drench (positive control). These 3 treatments were crossed with a well-watered or drought regime. We measured plant physiology weekly and periodically harvested plants to assess carbon allocation. For plants experiencing drought, we found that garlic mustard treatment significantly reduced photosynthetic rates early in the growing season compared to the dame's rocket treatment. Early season photosynthesis is critical in forest herbs because the majority of their annual carbon gain occurs prior to tree canopy closure. We also found that garlic mustard treated plants had reduced concentrations of stored carbohydrate, diminished root growth, and fewer clonal buds than control plants, which can reduce long-term survival. Overall, our data support a "mutualism disruption" hypothesis for invasion, which suggests that inhibition of native mutualists provides invaders with a competitive advantage over mutualism-dependent native species.

Erin Pfeil-McCullough, Geology and Planetary Sciences

Changes in Landslide Susceptibility During Canopy Loss Scenarios in Pittsburgh, PA

Despite the importance of canopy cover to hillslope stability, the effect of canopy loss on landslide susceptibility has not been assessed in urban areas. Subsidence in urbanized areas causes billions of dollars annually globally. Human activities are key to controlling subsidence risk, particularly preservation of slope stabilizing vegetation. Therefore it is important to determine how loss of trees due to non-native forest pathogens (e.g. emerald ash borer) may increase landslide susceptibility in Pittsburgh, PA. Existing landslide data was synthesized into a landslide inventory map for the city and landslide susceptibility for the entire city was estimated using the Stability Index Mapping (Sinmap) model. This risk map was compared with Pittsburgh iTree species data extrapolated citywide, to Urban Tree Canopy (UTC) data. Using the species data predictions, the soil cohesion parameters of Sinmap 2.0 were manipulated to reflect the changes in landslide susceptibility under various scenarios of canopy loss. These results are essential to the optimal management of ecosystem services provided by the urban forest.

Marina Moraiti, Mathematics

On the Quasistatic Approximation in the Stokes-Darcy Model for Groundwater-Surface Water Flows

We study the validity of the quasistatic approximation in the fully evolutionary Stokes-Darcy problem for the coupling of groundwater and surface water flows, as well as dependence of the problem upon the specific storage parameter. In the coupled equations that describe the groundwater and surface water flows for an incompressible fluid, the specific storage, S_0, represents the volume of water that a fully saturated porous medium will expel per unit volume per unit change in head. In confined aquifers, S_0 takes values ranging from 10^{-2} to 10^{-6}. In this work we analyze the validity of the previously studied quasistatic approximation (setting $S_0=0$ in the Stokes-Darcy equations) by proving that the weak solution of the Stokes-Darcy problem approaches the weak solution of the quasistatic problem as $S_0 \rightarrow 0$. We also estimate the rate of convergence.

Panel 3c: Deconstructing Beliefs in Diverse ways

Laura Cabrera, French & Italian

Relevance of Authorial Voice in Fontamara

In literary and cultural theory, the manifestation of a centralized self tends to generate negative criticism or, at the very least, remains a point of perpetual contention. Theories on authorship penned by noteable scholars like Roland Barthes establish the author as a figure who loses his identity upon undertaking the act of writing and whose voice has no relevance to textual meaning. Transcending a literary context, "the self" as a problematic entity also forms a substantial part of the historical inquiry on Italy's Southern Question, at present largely defined as a result of the peasantry's inability to exist beyond notions of the individual. Issues of "self" posed in these two overviews raise questions regarding Ignazio Silone's Fontamara, a novel that gives an explicit account of peasant culture under the Fascist government of the 1930s. Though Structuralism and the New Criticism, in maintaining the authority of text over authorship, would argue otherwise, Silone's voice is evidently present in Fontamara and plays a crucial role in unraveling a novel that is unfortunately often perceived as mere anti-fascist propaganda. In this paper, I will show that full comprehension of core themes in Fontamara hinges not only on Silone's voice as it appears in the novel, but also on the consideration of crucially relevant events surrounding the author at the time of publication, including an ideological break with the Socialist Party and an existential crisis leading to self-imposed political exile in Switzerland under the treatment of Jung. In bringing to light the importance of these events, I also demonstrate how theories of authorship established by Barthes and the New Criticism are problematized by the overt presence of Silone's voice. The final segment of the paper examines the dialogue between peasant and authorial voice to conclude on Silone's role as a facilitator of subaltern speech.

Joseph Franke, Music

William Grant Still and the Consequences of His Musical Principles

William Grant Still was composer who, in the face of an over-powering musical modernist movement, maintained a distinctly conservative approach to musical composition. By the mid-twentieth century, music was striving to become more and more intellectual; this was accompanied by an increasing level of abstraction. Against this, Dr. Still maintained that the composer should be a master of all techniques, and the servant of none; that to compose in a single idiom was restraining, confining, and not in the

best interests of creativity. He further insisted that personal expression is, or should be, subservient to the wishes and pleasures of the audience. This approach, so contradictory to much leading musical thought of the time, coincided with a drop-off in the performance of Dr. Still's music. He countered with claims of a discriminatory conspiracy by leading composers of the day – including Aaron Copland and Leonard Bernstein – to exclude his music from performance opportunities on grounds that were aesthetical. This aesthetical prejudice was as much a factor in Dr. Still's later career as racial prejudice had been earlier in his life, and is the reason why some of his works are only now being heard for the first time – whether in performance or on recorded media.

Nicholas Thorne, Classics

Plato and (Post-) Modernity

In two of his dialogues, Plato sketches the decline of a traditional order of belief in the face of a sceptical and individualistic critique. My paper will attempt briefly to give an overview of these two dialogues for those unfamiliar with them, but will focus on bringing out their relevance to our own time. The question of the relation of traditional belief to modern or postmodern critiques is a fundamental defining characteristic of our own time, everywhere on earth. Plato provides us with a distant mirror with which to reflect on modernity.

Tucker Ferda, Religious Studies

The Anti-Marcionite Implications of Origen's Textual Criticism

The great 4th century Christian theologian and philosopher, Origen of Alexandria, has been described as having a "tantalizing nonchalance" concerning textual variants in his scriptural manuscripts. The noted "nonchalance" refers to Origen's common practice of either noting textual variants without attempting to explain where they claim from, or incorporating variant readings into his exegesis of scripture. This study argues that Origen's "nonchalance" is actually strategic: Origen's method of inclusion counters the method of excision advanced by Marcion and his disciples. In effect, Origen transforms variant readings and textual corruptions into tools to be used by the skilled interpreter, and hence distances his theology from the physical state of the text.

Panel 3d: Understanding African-American Identity and Community through Media and Music

Taylor Hahn, Communication & Rhetoric

Understand Ororo: Analyzing Marvel Comic's Storm through a Black Feminist Lens

In May 1975, Marvel Comics unveiled a new member to their all-star team the X-Men; a Black woman named Storm. Like all of the X-Men, Storm is a mutant; a human with genetic abnormalities enabling superhuman powers that vary wildly depending on the individual. As implied by her name, Storm's power is the ability to control the weather. Mutants lead invariably hard lives; each defined by a unique set of trials and tribulations. What makes Storm's experiences unique to this study is that she is the only Black woman superhero, mutant or otherwise, that has maintained her status as a major character in mainstream comic continuity throughout multiple decades. Working to identify how Storm functions as a token for Black women in comic books, this paper seeks to analyze her life through a Black feminist frame. This analysis is presented in two parts. First, a brief background and literature review of the comic industry will be presented. Special attention will be directed towards isolating the difficulties

faced when analyzing identity in comic books. Second, the unique nature of Storm as a main character will be analyzed, focusing on the representations presented through her history and contemporary role in comics.

Daniel Barlow, English

Black Arts and Blues Violence: Reading the Blues of Amiri Baraka

This essay considers the Black Arts Movement as a critical period in the formulation of literary blues expressions, particularly with respect to the work of Amiri Baraka wherein the blues garnered massive symbolic capital that would play heavily into the refiguration of a post-1960s, politically and radically charged constituent of what I refer to as "the blues precedent"--a continuum of blues expressions as the foundation of blues-based ideologies identifiable in a range of African American musical, literary, and critical articulations. Based on readings of Baraka's blues criticism and his plays, The Slave, Ba-Ra-Ka, Boy and Tarzan Appear in a Clearing, and Dutchman, this essay posits a reorientation of literary blues expressions in terms of such a precedent as a useful heuristic for approaching blues literature with explicit recognition of not just its formal and aesthetic properties, but equally the cultural, social, racial, and political politics articulated in early African American music--political elements absorbed and reformulated through literary production and mediated at length by criticism of the twentieth and twenty-first centuries. The blues precedent per se is thus ultimately an inextricable product of history and of criticism proper, the combination of extrapolated blues elements variously and selectively extended into literary and cultural criticism.

Emily Crosby, Communication and Rhetoric

Racism, Sexism, and Constructive Authenticity: The Othering of Black Women in the "Women Who Rock" Exhibit

Absolute, "true" authenticity does not exist. Rather, it is a constructed, rhetorical phenomenon routinely displayed in venues such as U.S. museums (King, 2006). Often thought to be untainted vessels of knowledge, museums have been described as providing the "authoritative source to an uniformed receiver" (Hooper-Greenhill, 2000). However, due to scholarship that critically examines the communicative nature and rhetorical framing of museums, collective memory is challenged and its truth is dismantled, rendering museums as no longer neutral venues for display but a means to tell a story from a particular standpoint. Through this scholarship, it is understood that public memory may privilege an understanding of the past through the process of constructive authenticity (King, p. 235), potentially substantiating "myths" that operate to frame (marginalized) groups in an inaccurate or oversimplified way. Therefore, in this paper, I explore the notion of constructive authenticity as a way to expose cultural myths about black women that arise in my critical examination of the 2011 "Women Who Rock" exhibit at the Rock and Roll Hall of Fame and Museum in Cleveland, Ohio. This paper discusses the museum's framing of black women as aggressive, sexual mamas and objects for white commercial consumption, reinforcing racist and sexist stereotypes. Lastly, this paper addresses the notable void in critical rhetoric scholarship that focuses specifically on the presentation of black women in museum spaces, igniting many questions about the future of black feminist thought and pubic memory.

Lee Ellen Martin, Music

Café Society: A Social Catalyst of Equal Opportunity for African American Women in Jazz

In the late 1930s America was deeply segregated and many sought refuge from the brutality of racism, and sexism. New York's jazz club Café Society provided patrons with a safe haven through its policy of intolerance towards racism as well as its openly socialist leanings. Due to the progressive nature of the club, female African American artists were given opportunities to work dispelling beliefs that women could not play jazz as well as men. This paper focuses on the impact Café Society had on the careers of Billie Holiday, Lena Horne, Hazel Scott, and Mary Lou Williams. Barney Josephson, the owner of Café Society created a uniquely progressive environment that gave women a voice in an era when they were often relegated to silence. Café Society stood as a figure head for social change and an important vehicle for women in jazz. Café Society was not only a progressive venue for women in jazz, but from its beginnings served as a venue of the political left to express their frustrations over the lack of socio-political advancement for African Americans and for women after World War II. In the ensuing "Red Scare" large numbers of entertainers who fought for equal rights and performed for causes such as the Harlem Popular Front were blacklisted. The careers of both Lena Horne and Hazel Scott were deeply affected through blacklisting, and as a result both artists found it difficult to find work. Once a person's name appeared on any Communist listing it usually meant the end of their careers. Many prominent African American artists witnessed the flickering candle of progress extinguished by these ill political winds. Café Society opened in 1938 and was one of the first victims swept up in the hysteria caused by the House Un-American Activities Committee in the late 1940s.

Panel 4A : Approaches to Consider Human Thinking and Relationships

Yun Wang, Economics

Should You Believe Me? Bayesian Persuasion with A Committee

This paper investigates persuasion's role in collective decision-making. We establish a Bayesian persuasion framework with one informed sender facing multiple receivers. Similar to Kamenica and Gentzkow (2011), the sender's signal consists of a set of noise generating distributions and finite realizations generated by this mechanism. Unlike traditional communication games in which the sender reveals only the signal realization via costless message (cheap-talk), faces state-specific message spaces (certification), or is prohibited from adopting dishonest mechanisms (persuasion game), our paper examines the sender's optimal choice of the state-dependent ``noisy'' reporting mechanism and emphasizes the role of this mechanism in the receivers' voting behavior. We find that the effectiveness of the persuasion is attributed to the endogenous segregation of the receiver group, when the receivers vote strategically. Namely, in all equilibria a portion of the receivers vote informatively while the others uninformatively. There exist equilibria in which the receivers with smaller biases are convinced to always vote for one option regardless of their signal observations, while other receivers with moderate or larger biases vote according to the observations, or vote for the default option regardless of the observations. Moreover, we compare three persuasion protocols: the public persuasion with public signal realization, the public persuasion with private signal realizations, and the private persuasion. Although public observance serves as a restriction to the sender, it does not always prevent the sender from obtaining greater benefits from the persuasion. Under some circumstances the sender's gain from a signaling mechanism declines as the communication environment becomes more private.

Elay Shech, History and Philosophy of Science

Assume a Spherical Cow: Essential Idealization in Physics

In the early part of the 1980's, various philosophers with anti-realist sympathies, such as Bas C.van Fraassen with his 1980 The Scientific Image and Nancy Cartwright with her 1983 How the Laws of Physics Lie, mounted attacks against realist conceptions of science, theories, scientific confirmation and laws of nature. One notable line of argumentation was that the ubiquitous use of idealizations and approximation in scientific theory and practice, strongly undermines a realist conception of science, and can be taken as grounds for denying the truth of scientific assertions and questioning the conformational status of scientific accounts. From the position of realism, the standard retort to such an argument is that, either approximation techniques appealed to in science are no more than formal mathematical procedures that do not license extracting substantial philosophical import, or that it is possible in principle to offer some sort of 'de-idealizing' scheme in which more realistic accounts are accompanied by improvements in predictive output, as well as improvability of other theoretical merits such as explanatory and descriptive power. However, one wonders whether there exist idealizations that cannot, in principle, be de-idealized without causing considerable damage to the scientific account appealing to them. Questions arise: Are there good reasons to think that such 'essential idealizations' exist? If so, should purported examples be understood as threatening a realist conception of science? I will answer both questions in the positive and present particular case studies that support my claims. These will include scientific accounts of phase transitions and their appeal to the thermodynamic limit, as well as accounts of Quantum Halls Effects and their appeal to the two-dimensional limit.

Jae Kang, Economics

Communication between Multiple Informers and a Constrained Decision-maker

I analyze informative equilibria between two informers and one decision-maker who share compatible interests. The decision-maker's action is restricted since an action is costly. If the action is severely bound only in one dimension, information can be fully transmitted irrespective of the constraint degree. When the action is bound in both dimensions, full information revelation is still possible as long as the restriction is not too severe and the action costs the same in both dimensions. Even if full information transmission is impossible due to the constraint, there exist equilibria where the state is partially revealed in the form of partitions of state interval. In partial equilibria, the level of constraint decides both a partition number and boundary conditions between partitions at the same time.

Odile Hobeika, Communication & Rhetoric

Urgent Decisions About Infinite Matters: A Rhetorical Framework for Understanding Climate Policy

Civilizations began to look up at the skies in awe of their immensity. Soon inquisitive minds began to find weather patterns from the movement of stars and the sun, which aided them in the cultivation of plants and animals. Inversely, the global community has looked at climate patterns for some time now in hopes that it will find how to resolve the threat it has posed to plant and animal life. But one element has remained the same: the immensity of the skies and the corollary body of knowledge subtending climate science still strikes awe in humans, if not in the form of an awful problem. On the one hand, global warming has become an immense problem whose causes extend past the globe's horizons and into theories about star deterioration and cosmic ray particles. On the other hand, the existential threat that climate change poses, according to climate science models, suggests that immediate political judgment must take place. Between the two horns of the devil's dilemma there is yet a third:

skepticism. The demands for certainty prior to policy initiative and the raised brow of ethics have remained challenges for those politicians seeking to take immediate and tentative steps to resolve global warming. In acknowledging that climate science is still a developing field, political leaders and scientists must rely on rhetoric to make a persuasive case for the urgency of environmental policy. In this presentation, I will argue that a rhetorical framework for climate policy not only provides tactics to make, for instance, global warming policy proposals persuasive; it also forces us to consider a deeply philosophical issue: that the domain of political ethics is based on probability rather than certainty.

Panel 4b: Exploring Religious, National, and Ethnic Identities

Kaitlyn Myers, Music

"You must be quiet so that we can hear": Ballads and Memory in an Irish Traditional Session

The Crane Bar, a small pub located in Galway, Ireland, is one of the few places where one can still hear unaccompanied ballads sung in the midst of traditional music sessions. Popularized during the broadside craze of the late 18th century, ballads evoked the sentiment of the Irish people through years of famine and civil unrest, eventually coming to encapsulate a national memory of hundreds of years of tumult. By the late 1950s, singers started to perform this heavily historicized genre during instrumental sessions. They also began to incorporate new songs inspired by rock and the folk revival, which focused more on contemporary emotional concerns. In this paper I explore the significance of these ballads for the assorted patrons who attend weekly sessions at the Crane, focusing on the aspects of participation in vocal performance that evoke memory and create a sense of community among attendees and performers. I look specifically to Thomas Turino's recent work, Music as Social Life: The Politics of Participation, to consider how the experience of singing and listening to a ballad allows images of past events to be re-interpreted as contemporary signs. My research is based on fieldwork completed in Galway during the summer of 2009.

Selman Yilmaz, Sociology

From a Congregation to a Social Movement: Identity Changing in the Gulen Movement

The question of "identity" is being vigorously debated in social theory. The old identities like class and race which stabilized the social world for so long time are in decline, giving rise to new identities and fragmenting the modern individual as a unified subject. This "crisis of identity" is seen as part of a wider process of change that is dislocating the central structures and processes of modern societies and undermining the frameworks that gave individuals stable anchorage in the social work. Identity claims are the most distinctive feature of new social movements (NSMs). However, little empirical work has examined the impact of identity claims on social movement participation. In this paper, I will investigate identity changing in the Gulen movement which is a religious-political movement combining Islamic values with modernity, Turkish nationalism, tolerance, interfaith dialog, and democracy. This movement attracts millions of people from inside and outside of Turkey and has a strong political power as well as religious one. The main presupposition of this paper is that identity changing has helped the Gulen community's growing. Identity shifting is an important phase in social movements to continue their vitality. Without this kind of identity changing, this movement might encounter many difficulties with secular state, Turkey; and couldn't claim an organization in worldwide. In this paper, I will investigate three main identity and frame changes in the Gulen community including local, national, and international identities.

Cengiz Haksoz, Anthropology

Domination and Existence: Contested Nationalist and Religious Practices at a Muslim Shrine in Bulgaria

Religion and nationalism have been linked in the Balkans since at least the early 19th century, when nationalist-liberation movements had close relationships with their respective churches. Sacred sites, thus, are not only religious places where spiritual activities are performed, but also places of manifestations of power and dominance. Changes in the sociopolitical milieu may lead to alterations in previous domination-subordination relationships within sacred spaces, and changes in the rituals and other activities at them. This paper is based on ethnographic research conducted in July 2010 at the Yenihan Baba shrine (turbe) in Smolyan, Bulgaria. The shrine demolished and renovated several times since 1912, and finally totally re-built in 2005. By the example of Yenihan Baba shrine, I examine how political-religious usage and re-invention of the sacred sites take place in everyday life practices around the sites, and as well as, how people respond, challenge and reshape these re-invented practices. I discuss further how the site has become a site of multiple contestation between Bulgarian nationalists and Turkish and Muslim minorities, between Sunni and Alevi Muslims and between different Sunni traditions. Based on Hayden's (2002) 'antagonistic tolerance' model, I propose 'symbol of existence' model to explain these contestations.

William Blomfelt, German

Blowing Smoke: the Talking Turk in E.T.A. Hoffmann’s "The Automatons"

This project explores the depicted relationship between the Oriental and the European, in Hoffmann’s The Automatons. Hoffmann explores this dynamic via a Turkish automaton, its master, and the German spectator. For the audience, the Turk reflects an object of intrigue, showcased and framed, like a work of art, for a live European audience as the spectator glares at the obscure figure. This relation reflects the fascination with the Turk, a symbol of divergence from the European culture. To the puppet master, the Turk is a power symbol, something one can fully grasp and control at one’s will. In order to expand on this master-servant dichotomy, I reference Edward Said’s notions of the “Orient” as a being of both curiosity but also inferiority. With a turn of the master’s key, the Turk can instantaneously be silenced. The puppet itself lacks autonomy, and this is emulated through its broken, at times incomprehensible, language. These characteristics also supplement the oddity. Thus, the Turkish automaton’s main obstacle throughout Hoffmann’s story is gaining a sense of autonomy in a Europe full of wonder and manipulation.

Panel 4c: Approaching Issues in Academia

Sarah Bishop, Communication & Rhetoric

The Rhetoric of Study Abroad: Perpetuating Expectations and Results through Technological Enframing

This analysis examines the preparatory and reflective online rhetoric available to potential and past academic travelers at the university level. Built on Heidegger’s notion of the ways in which technological processes “enframe” human experiences, the paper scrutinizes the visual and verbal rhetoric found on the websites of the three U.S. universities that sent the most students abroad during

the 2009/2010 school year: New York University, Michigan State University, and the University of Southern California. Taken as a whole, these sites were found to minimize a traditional classroom environment in favor of depictions and descriptions of "on the ground" interaction with members of the host culture and outdoor environments. The analysis provides a critical look at the websites' (over)emphasis on "first hand" cultural immersion, promises for transformative experiences, tendencies for suggesting cultural homogeneity, and dichotomies in depictions of skin color. In addition, the analysis observes the ways in which the program administrators perpetuate a specific study abroad experience by encouraging study abroad alumni to provide certain types of testimonials to be uploaded to the website (a practice often complicated by the offer of a grand prize for whomever fits the bill most accurately). Implications and suggestions for further research are discussed.

Peter Wayne Moe, English

Narratives of Teaching as Representations of Pedagogy

In terms of the pedagogies they represent, narratives of teaching offer a rhetorical site demanding further attention. Whether on film, in song, in poetry, in fiction or non-fiction, narratives can be read through a lens considering what pedagogies are embodied in these tales and what value is placed upon these pedagogies. In this presentation, I turn my attention to a particular set of narratives: "What Works for Me," 200-750 word descriptions of successful classroom practices that appear regularly in the in the National Council of English Teachers journal *Teaching English* in the Two-Year College. Written by writing instructors of college composition courses, "What Works for Me" is unique scholarship; whereas many journals approach pedagogy from a theoretical tact, "What Works for Me" is the opposite, grounded in praxis. And while they could be reductively read as mere teaching tips, here I trouble that simplistic read of "What Works for Me." Gathering the past ten years of "What Works for Me" pieces, I contend that these narratives house implicit value judgments about what constitutes a pedagogy that "works," as well as implicit statements about what pedagogies instructors value within a classroom. "What Works for Me" also provides insight into how instructors position themselves in relation to their students, offering a glimpse into what ways it is institutionally acceptable (as evident by the publication of these articles) to speak of students. Through my analysis of these narratives of teaching, I show that how instructors describe their teaching reveals much not only about their pedagogies, but also about the academy.

Yue Li, Economics

How Immigrants Affect the College Major Choices of Native-born Americans: a General Equilibrium Analysis

This paper investigates the impact of immigrant inflow on the host country's native-born citizens, who make a two-step educational decision: 1) go to college or not; 2) if at college, pursue a major in natural sciences and engineering (NSE) or not. The two layers of educational choices are based on a two dimensional task supply setting (quantitative tasks and interactive tasks) for skilled workers. An individual who goes to college and chooses an NSE major gains quantitative tasks at the opportunity cost of acquiring interactive tasks from selecting a Non-NSE major. Furthermore under this setting, the skilled immigrants, who specialize more in quantitative tasks, are no longer perfect substitutes for the host country's skilled native population, who specialize more in interactive tasks. Omitting this difference underestimates the negative effects from skilled immigrants on native-NSE-major choices. This paper applies a general equilibrium model with three types of labor inputs in an overlapping generation environment. Agents are heterogeneous over a two dimensional ability type: quantitative

ability and interactive ability. Furthermore, besides tuition cost, I find that introducing an inherent disutility of pursuing an NSE major improves the model's fit. My results indicate that, based on the technological level in 2006, in the long run, a 50% additional inflow of unskilled immigrants induces a 2.1% increase of skilled-worker share, but a 0.2% drop of NSE major share; while a 50% more inflow of skilled immigrants causes the a 1.8% decrease of skilled-worker share and a 0.8% decrease of NSE major share.

Justin Sevenker, English

Provocations: Teacher Memoir and a New Vision of Education

Educators and educational theorists have long been interested in how teaching practices are represented and studied. Scholarship on teaching portfolios abounds; assessment technicians develop methods that offer us holistic pictures of the classroom experience; and entire journals (Pedagogy, College English) offer thoughtful depictions and reflections on classroom praxis. In this presentation, I turn my attention to a particular set of representations that has received little serious attention from those concerned with pedagogy: teacher-authored memoirs. The genre of the teacher memoir continues to expand, now offering enough titles for Amazon to group them by subject and for book reviewing sites like GoodReads.com to offer extensive bibliographies and commentary. Ranging from lesser known critical accounts like Jane Tompkins's A Life in School to Frank McCourt's feel-good national bestseller Teacher Man, these texts represent the roles of teachers and the work of teaching to a wide reading public. Where educationists have largely ignored this corpus of popular, creative accounts in favor of more traditionally scholarly representations, I contend that teacher memoirs merit close study on a number of fronts. My basic premise is that all representations of teaching are imperfect and provocative, and that each mode contributes unique potentials and problems to how we understanding teaching/learning interactions. My first aim, then, is to consider how teacher memoir might impact the academy—specifically, how its potentials can reinvigorate the standard practices of educational theorists and teacher educators. My second aim is to trace the impact of teacher memoir on the public at large. Because of their wide circulation, teacher memoirs (along with education-centered fiction, films, and television) contribute to a national, cultural vision of teachers and teaching. I argue that such cultural representations influence not only our attitudes toward teachers and teaching practices, but also our assumptions about learning processes and educational policy.

Panel 4d: Exploring Language

Hsin-Yi Tsai, Anthropology

Rhetorical Adoption and Emotional Ties in Pohnpei, Micronesia

This paper intends to excavate how Pohnpei people consider the relationship between care giver and care receiver, and how they call it as adoption both rhetorically and emotionally. Today, it is not uncommon to hear people claim that fewer Micronesian will approve formal adoption and sign legal documents because "the parents won't let their kids give away". In other words, the Islanders are pretty aware that the concept of adoption in modern legal system breaks up the ties between the child and the biological parents. In other words, Pohnpei people view the cleavage of the word "adoption" between Western and Micronesian thoughts. But it doesn't mean that adoption disappears. Quite the contrary, informal adoptions have become more common since more and more Micronesians migrated to other countries, and the young parents who work abroad usually send children back to the island and have them be taken care by their grandparents and their relatives. Therefore, this phenomenon needs to be

understood by the narratives of Micronesian history. My thesis is while Micronesians acknowledge the word adoption in English influences the form of relationship, they emphasize the emotional ties between the adoptive parents and the child.

Holman Tse, Linguistics

Consonant and Tone Interaction in Cantonese

In this presentation, I discuss results from a statistical analysis of the acoustic properties of the speech of six native speakers of Cantonese. The particular research question investigated was whether or not tone in Cantonese has an effect on a property known as Voice Onset Time (VOT), a measurement of the duration of what are known as "stop" consonants, and whether this effect is purely a phonetic consequence of how tonal distinctions are produced or whether these effects are mediated by abstract tonal categories. Previous research examining the relationship between tone and VOT in other languages (including Mandarin, Hakka, Shanghainese, Taiwanese, Mazatec, and Kera) has shown mixed results. The study presented here contributes to this research literature by adding Cantonese to the list of tonal languages that have already been investigated. Results from an ANOVA test on the Cantonese data showed that there is a statistically significant effect ($p < 0.000$) of tone category on VOT. In particular, a post-hoc analysis revealed a two-way split between words with a low-falling (21) or mid-rising (25) tone, which have higher VOT, and words with either a mid-level (33) or high-level tone (55), which have lower VOT. A Pearson's Correlation Test also showed statistical significance ($p = 0.01$) with an inverse relationship between VOT and onset F0 height, a continuous variable that roughly corresponds to tone height. An analysis of individual speakers, however, showed that this correlation was statistically significant for only 3 of the 6 subjects while ANOVA tests on each individual speaker showed statistical significance for all 5 male subjects but not for the female subject. The more consistent results on the ANOVA tests on individual speakers suggest that abstract tonal categories play a role in producing these differences.

Huichao Xue, Computer Science

Learning Distance Metrics for ESL Word Choice Similarities

Automatic error correction systems for English as a Second Language(ESL) speakers often rely on the use of a confusion set to limit the choices of possible correction candidates. Typically, the confusion sets are either manually constructed or extracted from a corpus of manually corrected ESL writings. Both options require the involvement of English teachers. This paper proposes a method to automatically construct confusion sets for commonly used prepositions from non-ESL corpus without manual intervention. Our experimental results suggest that the automatically constructed confusion sets based on the learned distance metric is competitive with those directly learned from a ESL corpus containing about 20K preposition usages.

Laura Morrett, Psychology

Can Gesture Facilitate L2 Acquisition?

What is the role of gesture in second language (L2) acquisition? Research has revealed that gesture can facilitate L2 word learning (Kelly, McDevitt, & Esch, 2009) and speech perception (Hubbard, 2009). Moreover, some work suggests that native interlocutors modify their gesture qualitatively and quantitatively when speaking to L2 learners (Adams, 1998). In the study, pairs of English-speaking

participants were randomly assigned to either the visible condition, in which they sat across a table from one another, or the invisible condition, in which an opaque occluder was placed between them. In each learning trial, one member of each pair (the teacher) learned one of twenty Hungarian words via either text and iconic gestures or text alone. After learning each Hungarian word, the teacher taught it to their partner (the learner). Following a 5-minute post-learning phase break, the teacher and the learner were tested for their recall and recognition of Hungarian word meanings. The results revealed that teachers produced more iconic gestures when teaching words that they had learned via iconic gesture, and when their partner was visible. However, the number of beat (simple rhythmic) gestures did not differ by condition. Analysis of learning outcomes revealed a trend for teachers to recall more words that they had learned via gesture than via text, and a significant effect for teachers whose partner was visible to recognize more words than teachers whose partner was invisible. Finally, a regression analysis revealed a trend for teachers' iconic gestures to predict which words were recalled by learners. The results of this study demonstrate that L2 learners use iconic gestures to communicate the meanings of novel words to interlocutors, and that iconic gestures help L2 learners acquire and retain L2 words. As such, the results demonstrate that gesture facilitates L2 acquisition by promoting communication, acquisition, and retention.