

# Sessions

## Concurrent A Sessions: Monday, 10:30am - Noon

### Seminar Room I

#### Aerospace Engineering

##### **Parachutes, Propulsion and People: Human Mars Missions from Mach 3 to Ground**

Jarrett Lafleur, Georgia Institute of Technology

Parametric evaluation of methods to decelerate large payloads beginning at Mach 3 in the Martian atmosphere.

##### **Kalman Filtering for Robust Satellite Attitude Determination and Control**

Brandon Luders, Georgia Institute of Technology

Application of Kalman filtering for attitude determination and control of a spacecraft simulator modeling system dynamics, covariance matrix, and expectation values.

##### **Estimation of Coulomb Damping Parameter by Least Squares Regression Analysis**

Wesley Slem, Virginia Tech

Determine a numerical algorithm for determining the plant parameters from measured initial displacement response of a mass-spring-damper system possessing both Coulomb and viscous damping.

### Seminar Room II

#### Life Science

##### **Larvae of *Chimarra* Species (*Trichoptera:philopotamidae*) From Eastern North America**

John Gosnell with J.C. Morse, Clemson University

Seven common larval forms of *Chimarra* caddisflies are described to enable ecological study and facilitate their use in monitoring water quality in eastern North America.

##### **Hummingbird Visitation and Effects on *Proctolaelaps kirmsei* Mite Populations in *Hamelia patens***

Rebecca Fink and Courtney Kluger, Duke University

Investigates the trade-off between maximizing pollination by hummingbirds and minimizing pollen predation by *Proctolaelaps kirmsei* mites experienced by *Hamelia patens* trees.

##### **Ontogeny of the Echolocation Attack Sequence During Maturation and Prey Differentiation in Big Brown Bats (*Eptesicus fuscus*)**

John Michael Barratta, Wake Forest University

Examines the development of the echolocation attack sequence of big brown bats during maturation and prey differentiation.

##### **Optimal Cell Culture Conditions Enhance Dendritic Growth in Isolated *Apis mellifera* Kenyon Cells**

Kristina Iverson, Wake Forest University

To facilitate studies of the regulation of neuronal growth in the honeybee, optimal culture conditions for bee neurons were determined through the manipulation of culture conditions.

# Sessions

## Concurrent A Sessions: Monday, 10:30am - Noon (continued...)

Meeting Room I/II

### Sociology

#### **Examining the Role of Collective Action in Informal Institutions**

*Mehdi J. Benkhatar, Florida State University*

This project examines how recycling behaviors at Florida State University are influenced.

#### **A Culture of Engagement: Civic Participation in Democratic Societies**

*Ross Baird, University of Virginia*

After visiting several countries with significantly higher voter turnout rates than the United States, I use empirical research to show that political participation relies on four factors: civic culture, civic education, public psychology towards politics, and structure of government and elections.

#### **Political Ideology and Political Identification**

*John Mason, Virginia Tech*

This project explores the types of political issues that polarize voters to identify themselves as Democrat or Republican.

Meeting Room III/IV

### Communication and Film

#### **Discussing Postpartum Depression: A Comparison of Major U.S. Newspapers and Internet**

*Rebecca A. Adnot, Clemson University*

A content analysis of newspapers and the Internet is performed using agenda-setting theory to determine the extent of coverage of postpartum depression.

#### **Crash: A Foucauldian Collision of Nihilism and Existentialism**

*Douglas Westlake, Florida State University*

An exploration of how filmic themes of identity, sexuality, and technology coalesce to express director David Cronenberg's ambiguous outlook on the effects of late modern capitalism.

#### **Illness Narratives and Medicine**

*Victoria Chiou, University of Virginia*

Illness narratives help patients cope with illness through psychological, social, and literary processes that lead to biological effects and health improvements; implications are discussed.

#### **Butch in Exile: Masculine Women in American Film**

*Cassandra Williams, Wake Forest University*

Serves as the groundwork to establish a list of relevant films in American cinema with masculine women and attitudes toward such characters.

## Featured Speaker - Elaine Seymour, Ph.D., University of Colorado

### **The Benefits and Costs of Faculty Engagement in Undergraduate Research and Their Source**

Dr. Seymour discusses the latest findings of her research group on the nature and consequences of faculty engagement as research advisors to undergraduates in summer research programs at four liberal arts colleges.

## Lunch, Grand Ballroom: Noon - 1:00pm

### **From Research to Real World** *(during lunch)*

*Dave McNamara, Director, SCRA Launch!*

Mr. McNamara discusses SCRA Launch!, a joint venture combining the strengths of South Carolina's research universities and SCRA to commercialize research.

## Concurrent B Sessions: Monday, 1:15 - 2:45pm

## Medicine and Bioengineering

### **Effort Towards the Structural Characterization of LnmQ: A Novel Adenylation Domain**

*William Hillman, Boston College*

The modular nature of NRPS and PKS systems provides great potential for combinatorial biosynthesis. Structural determination of novel NRPS and PKS domains will contribute to this goal.

### **Characterization of Microencapsulated Chondrocytes**

*Angela Gill Bailey, Georgia Institute of Technology*

Optimization of tissue-engineered cartilage implants offers treatment options for osteoarthritic sufferers. Monolayer and microencapsulated chondrocytes were characterized using reverse transcription polymerase chain reaction techniques on rat growth plate and human articular chondrocytes.

### **Applying Smart Biomaterials to Vital Organ Engineering**

*Mark K. Weng, Georgia Institute of Technology*

Novel biomaterials and approaches to regenerative medicine are examined and a method of fabricating films was developed using a biocompatible and biodegradable elastomer, PGS.

## Biology and Bioengineering

### **A Mathematical Model of Cellular $Ca^{2+}$ Dynamics**

*Rudolph C. Arceo II, Florida State University*

I will discuss the investigation of the dynamics of  $Ca^{2+}$  within nerve or endocrine cells using a mathematical model.

# Sessions

## Concurrent B Sessions: Monday, 1:15 - 2:45pm (continued...)

Seminar Room II

### **CB1 Expression in the Developing Visual System of the Chick**

*Breyda Ortega, Florida State University*

The expression of CB1 receptors in the developing visual system of the chick embryo is examined.

### **Postural Configuration and Kinematic Degrees of Freedom Affect Single Muscle End-Point Forces**

*Keith Van Antwerp, Georgia Institute of Technology*

A 7 degree of freedom dynamic musculoskeletal model of the cat hindlimb is used to study the effect of limb kinematics on single muscle endpoint forces.

### **Edwin Southern's Inventions: Policy and Intellectual Property Considerations**

*Daidree Tofano, Duke University*

A case study of the policy and intellectual property surrounding two of Edwin Southern's inventions: the Southern Blot and the microarray.

Meeting Room I/II

## Political Science

### **Does Deterrence Still Matter?: Terrorism and Punishment**

*Mark Irvine, Boston College*

The lessons of Israel's strategy of home demolitions and reprisals as deterrence against terrorist attacks originating from Lebanon and the Palestinian territories.

### **Misdiagnosing Malpractice**

*Vikram Jagadish, University of Miami*

This study examines the effect of tort reform on the aggregate level of malpractice.

### **The IMF: Architect of Default in Argentina**

*Catherine Hauptfuhner, University of Virginia*

Through multivariate time series regression and qualitative analysis, I compare Argentina's 2001 crisis to its Great Depression era crash as well as to other 1990s international financial crises.

Meeting Room III/IV

## Literature

### **Don Quixote and the Liar's Paradox**

*Emily Cersonsky, Boston College*

Don Quixote is a prototype for the modern quest to create a "reality" - make lies real - as a response to the inherent subjectivity and inconsistency of the world.

### **"Double Consciousness" and the African-American Woman**

*Chantel R. Peacock, Florida State University*

I discuss DuBois's belief that African-Americans define their self-identity in relation to others and, in turn, lack a connection to and have self-consciousness about a more "true" individual personality.

### **The Neo-Vampyre Narrative and the Emergence of Cyberpunk Fantasy in Western Culture**

*Chris Van Acker, Georgia Institute of Technology*

Interpretation of the contemporary vampyre narrative as the Cyberpunk movement of the Fantasy genre, including literary and film works by Anne Rice, Stephen Norrington, Len Wisemen, and Joss Whedon.

### **Filial Affection and Female Education**

*Maria Petrie, Georgia Institute of Technology*

Extensive discussion of Wollstonecraft's use of metaphor in her work "A Vindication of the Rights of Woman", focusing on Wollstonecraft's goals of expanding female civil liberties.

## **Faculty Presentations - Best Practices in Undergraduate Research**

### **Coordinated Creative Inquiry**

*Ben Sill, Ph.D., Clemson University*

Clemson is embarking on a unique educational enhancement for all our undergraduate students: everyone will participate in a "Creative Inquiry" project – but can there be coordination between projects?

### **Promoting Undergraduate Research at Virginia Tech by Creating a Research Option Course**

*Michael Alley, Ph.D., Virginia Tech*

This paper presents the results of an NSF-sponsored project at Virginia Tech to promote and foster undergraduate research in engineering through a modified section of a technical writing course.

### **Situated Learning: Nurturing a Successful Undergraduate Research Initiative**

*E. Leslie Williams, Ph.D., Clemson University*

All undergraduate research projects have one central goal for faculty: assisting undergraduates to master academic research methods and then credibly report their findings. How can this be accomplished?

### **Engaging Students in Research**

*Clementina R. Adams, Ph.D., Clemson University*

This presentation deals with ways to get students involved in projects that would be beneficial to both the faculty member as well as the students working on the projects as research assistants.

## **Poster Presentations: Monday, 1:15 - 4:30pm**

*Note: Presenters will be at their posters from 4:00 - 4:30 p.m. for questions and feedback.*

### **Influence of Caloric Restriction on Inflammation in Brain Cancer**

*Tierman Mulrooney, Boston College*

An investigation into the anti-inflammatory effects of caloric restriction in brain cancer.

### **In Vitro Production of Secondary Metabolites by Turmeric (*Curcuma longa* L.) Microrhizomes**

*Matthew Cousins with Jeffrey Adelberg, Feng Chen and James Rieck, Clemson University*

Antioxidant activities of in vitro turmeric rhizomes were evaluated. In vitro rhizomes were potent. Whole plant tissue cultures are novel for producing standardized medicinal biomass.

# Sessions

## Poster Presentations: Monday, 1:15 - 4:30pm (continued...)

### **The Birds and the Bees: Evolution of Flower Color as a Pollination Syndrome in *Penstemon***

*Sarah Wallace, Duke University*

An investigation into the mechanics of blue-to-red pigment evolution in *Penstemon* by evaluation (through HPLC analysis) of the anthocyanin biosynthetic pathway in the genus.

### **A Bioluminescent Fusion Protein for High-Throughput Screening of Gibberellin Signaling Mutants in *Arabidopsis thaliana***

*Kevin Jeng, Duke University*

To study the GA signaling pathway, we created a RGA-luciferase fusion protein to use the bioluminescence caused by luciferase as a reporter for RGA expression.

### **ENSO Impacts on Sea-Level Change Along the Gulf Coast**

*Andrew Kennedy, Florida State University*

The impact of tropical systems on sea level in the Gulf of Mexico is analyzed.

### **Comparison of Human Cortical Surface Reconstructions from Magnetic Resonance Imaging Data**

*Aaron D. Kline, Florida State University*

This study examines the biases, differences, and similarities between the cortical surface reconstructions of different brain cartographic methods.

### **Developmental Differences in Growth Cone Dynamics**

*Carly Moerdyk, University of Miami*

This study examines differences in embryonic and postnatal retinal ganglion cell axons in regards to their growth cone dynamics, including the number and size of filopodia and lamellipodia.

### **Endogenous Stem Cell Response to Valproate and Rolipram After Spinal Cord Injury**

*Jack Louro, University of Miami*

This study examines the effects of two drugs' (Valproate and Rolipram) ability to drive endogenous progenitors towards differentiation into neurons and encourage them to extend axons from a spinal cord lesions site.

### **Complexes With Ionic Liquids**

*Samantha Parker, University of Miami*

This study examines the properties of ionic liquids with the addition of host molecules, cucurbiturils.

### **Optimizing the Performance of Cryogenic Microcalorimeters**

*John Appel, University of Miami*

This study examines two models that will predict the performance of microcalorimeters.

### **Sequence Comparison of Tissue Specific and Housekeeping Genes**

*Angela Maness, University of Miami*

This study examines any relationship among the genetic characteristics that exist within or between tissue specific and housekeeping genes.

**An Exploratory Data Analysis of Ambient Mercury Data Collected at Sites in Charlotte, N.C.**

Robert Conway, North Carolina State University

An atmospheric mercury data set provided by the North Carolina Department of Environmental and Natural Resources for Mecklenburg County, N.C., that is expansive and complex was statistically examined.

**An Analysis of Mercury Air Pollution Data in Elizabeth and New Brunswick, N.J.**

Wilma Jackson, North Carolina State University

The Tekran Continuous Mercury Analyzer was used to measure elemental, particulate and reactive gas mercury over a two-year period in Elizabeth and New Brunswick, N.J.

**Domestication and Genetic Contributions to Anxiety-Related Behaviors in *Danio rerio* (Zebrafish)**

Susanna Katherine Rankin, North Carolina State University

The zebrafish was studied to assess genetic and environmental contributions to the display of anxiety-related behaviors and differences between wild and domestic stocks.

**Effect of Powered Ankle Foot Orthoses (PAFOs) on Walking Economy**

Erica Byrne, Wake Forest University

This study examined the effect of augmenting ankle plantarflexor muscle power using Powered Ankle Foot Orthoses (PAFOs) on submaximal oxygen consumption and walking economy.

**Aggression and Interference Behavior in Group-Housed Female *Cynomolgus* Monkeys (*Macaca fascicularis*)**

David J. Pappano, Wake Forest University

This project focuses on the causes and effects of agonistic aiding, or fight interference behavior, in social groups of unrelated post-menopausal (surgically-induced) *M. fascicularis* females.

**Concurrent C Sessions: Monday, 3:00 - 4:30pm****Engineering, Physics and Astronomy****Gamma-Ray Bursts and Host Galaxy Extinction Corrections**

Christina Riddle, Clemson University

Light curves of gamma-ray bursts were modified after determining the amount of extinction from the host galaxy to ascertain the true luminosity of the supernova component.

**Mars Human Precursor Mission Design**

Kevin Flaherty, Brandon Luders, Tina Rezvani, Sapan Shah and Waqar Zaidi, Georgia Institute of Technology

Development of a vehicle and mission that will mitigate the risks of future Human exploration of Mars by assessing biohazards to in transit and on the surface of Mars.

**Use of Portable X-Ray Fluorescence Spectrometry Units for Identification of Arsenic in Treated Wood**

Colleen Block, University of Miami

Evaluates the performance of handheld XRF analyzers in a mood matrix. Specifically, experiments were designed to evaluate precision, detection limit, effective depth of analysis and accuracy.

# Sessions

Concurrent C Sessions: Monday, 3:00 - 4:30pm (continued...)

Seminar Room II

## Biochemistry and Physiology

### Stable Isotope Tracer Studies to Determine the Origin of Conjugated Linoleic Acids Produced by Stomach Microorganisms in Cattle

Jessica A. Mulz with C. M. Thompson, M.K. Reynolds, E. J. Thies and T.C. Jenkins, Clemson University  
Using stable isotopes of unsaturated fatty acids and mass spectroscopy, we determined the origin of bioactive CLA isomers synthesized by stomach microorganisms in ruminant species.

### Methylphenidate Treatment During Pre- and Early Adolescence Alter Sensitivity to Nicotine

John Antapasis, Florida State University  
This study asks the question of whether MPH exposure during development alters an organism's sensitivity to abused drugs such as nicotine.

### Tungsten-Promoted Dearomatization of Pyrimidines

Yogesh Surendranath, University of Virginia  
Pyrimidines exhibit facile eta-1 to eta-2 isomerization when coordinated to the pi-basic metal fragment, {TpW(NO)(PMe<sub>3</sub>)} (Tp = hydridotris(pyrazolyl)borate). Metal coordination promotes the pyrimidine towards Diels-Alder cycloaddition to produce [2.2.2]diazabicyclooctadienes. Cycloaddition proceeds regioselectively with the dienophile withdrawing group orienting anti to the pyrimidine nitrogens.

Meeting Room I/II

## Business and Communication

### Examining Customer Loyalty as a Resource Investment

Colby Mistovich, Clemson University  
Examining customer loyalty as a relationship involving the investment of resources, this research employs conjoint analysis to determine the importance that customers place on the resource categories when making a decision to revisit a retailer.

### Examining the Robustness of the "Natural Resource Curse" to Definitions of Growth

Cara Castellana, Florida State University  
The sensitivity of the "Natural Resource Curse" to different measures of trend growth rates as well as different measures of GDP (gross domestic product) is examined.

### USAID Implementing Networks: A Macedonian e-Case Study

David Sibal, Georgia Institute of Technology  
Analyzes the interaction among various stakeholders implementing three e-initiatives in Macedonia. By studying hierarchies, communication, and information transfer, each effort is portrayed within an institutional context to create clearer understanding of interaction.

### The Conductivity of RFID Traces When Printed With Waterbased Inks

Jerry Patterson with Sean Freeman, Clemson University  
The conductivity of printed antennae traces used in RFID technology was examined when printed over and under layers of water-based flexographic ink.

## Architecture

### What is Landscape Restoration?

*Michael Marion, Clemson University*

Exploration of the meaning and scope of “landscape restoration” in the U.S. through case studies and articles from different media.

### No Compromise - Virginia Tech Solar House 2005

*David Clark with Brian Atwood, Virginia Tech*

The goal of this project is to develop sustainable ways of building - and thinking about building - through collaborative design and construction.

### Sculpted Heads in St. Etienne Cathedral

*Meghan Hollar, Wake Forest University*

Overview of the process used to develop a relative chronology of sculpted stone heads found in St. Etienne Cathedral, Auxerre, France.

## Faculty Panel - Moving Heaven and Earth: An Open Forum on Accomplishing Undergraduate Research

*Moderator: Jan Murdoch, Ph.D., Dean of Undergraduate Studies, Clemson University*

*Scheduled Participants: George Barthalmus, Ph.D., Undergraduate Research Programs, North Carolina State University; Jeff Appling, Ph.D., Associate Dean for Curriculum, Undergraduate Studies, Clemson University; Mark Charney, Ph.D., English/Performing Arts, Clemson University*

In this moderated, interactive session, audience members are invited to voice comments, questions and issues regarding undergraduate research. The goal is to share experiences and ideas, learn from others’ successes, and adopt what is useful for your institution and discipline. The audience will determine the topics discussed.

**Graduate School Information Session, Grand Hallway: 5:00 - 6:30pm**

*End of Monday Sessions - See Social Events on page 6 for evening activities.*

# Sessions

Concurrent D Sessions: Tuesday, 9:15 - 10:45am

Seminar Room I

## Mathematics and Technology

### Subgoal Learning in Advanced Algebra

*Kristie Fisher, Georgia Institute of Technology*

The efficacy of the subgoal learning model was examined in the subject area of advanced algebra using generalized subgoal and example-problem-specific subgoal learning structures.

### Carmichael Numbers in Abelian Extensions of $\mathbb{Q}$

*Ander Steele, Georgia Institute of Technology*

An algorithm is developed for identifying composite numbers using a Fermat-like test in appropriate extension fields.

### Computation of Multiple Solutions of Singular Nonlinear Boundary Value Problems

*Grey Ballard, Wake Forest University*

I will discuss the Computational Commutative Algebra language (CoCoA) and its implementation in an algorithm to conjecture protein dependency networks.

Seminar Room II

## Natural Resources and Horticulture

### A Cooperative Approach to Utilizing the Scarce Water Resources of the Jordan River Basin

*Jonathan Komorov, University of Miami*

This study examines how the resources of the Jordan River Basin can be improved through the adaptation of transnational river basin models adapted to meet the developing needs of the basin within its present political and transnational context.

### Influence of Elevated Levels of Arsenic on Leaf Decomposition and Microbial Structure and Function in a Headwater Stream

*Loren Reinhardt, Virginia Tech*

Microcosm experiments using leaves and water from the reference and mine-influenced sites were constructed to examine chronic and acute influences of arsenic exposure.

### Chipped Pine Logs: A Potential Substrate for Nursery and Greenhouse Crops

*Thomas Sanders, Virginia Tech*

This project's purpose is to determine the pre-plant substrate additives to PC required to grow marigold geranium (*Pelargonium x hortorum* 'Red Elite') and tomato (*Lycopersicon esculentum* 'Better Boy').

### A GIS Approach to Land-Use and Sustainability in a Dominican Republic Shantytown

*Lindsey Gates and Netanya Huska, Virginia Tech*

The goal of this research is to use a land-use survey and field observations to measure and record the growth of a squatter settlement.

## Psychology

### **The Effects of Sleep Deprivation on Audio Task Performance**

*Carrie Jung with Sarah Beth Spainhour, Ginger Potoroff and Thomas Myers, Clemson University*

This study used an audio task designed to test participants' ability to recognize keywords and identify main points simultaneously from audio material approximately 25 minutes long.

### **Effects of Demand: Investigating Participant Demand Characteristics**

*Austin Lee Nichols, Florida State University*

This study examines effects of participant demand characteristics on responding within a laboratory study.

### **Marketing Alcohol-Related Traffic Fatalities: The Effects of Allowing Alcohol Companies to Target Minors in Advertising**

*Ryan Smith, Virginia Tech*

This study investigated the impact of state laws prohibiting alcohol advertising that targets minors.

## Studies in Culture

### **Music in Brazil: A Teacher's Perspective**

*Joy Wilson, University of Miami*

This study describes the convergence of living, teaching, composing, and performing in the Brazilian culture.

### **Songs of Praises and Invocation: The Orisa Sacred Songs of Trinidad**

*Richard Paul, Boston College*

Ancient rhythm, the healer of their pain, the dance of their ancestors, gave Afro-Trinidadians the determination to overcome the horrors of the Atlantic Slave Trade.

### **Traces of Orality: Assessing the Liminal State of Arab Descent Authors in Hispanic and French Novels**

*Rita Benitez, University of Miami*

This study is a comparison of literary texts written by authors of Arab descent. It attempts to demonstrate how orality and language are representative of immigrant Arab identities in Chile, Argentina, Spain, and France.

### **John Zorn and the Masada Songbook**

*David Ross Brand, Florida State University*

This paper aims to define the parameters of the Radical Jewish Culture movement through an ethnomusicological analysis of John Zorn's Masada Songbook.

## Performing Arts

### **Bringing Student Life From the Mind to the Page to the Stage**

*Michael Kelly, Wake Forest University*

This project touches on the process of the development of a play, and application of the text to production to uncover the myth of playwriting.

# Sessions

## Concurrent D Sessions: Tuesday, 9:15 - 10:45am (continued...)

Bell South  
Auditorium

### **From Page to Stage: Writing and the Workshop Process**

*Joshua Mikel, Ellen Girvin, Mackenzie Gerber, William Tucker and Jeff Stevenson, Florida State University*

The presentation will focus on the importance of the process, group dynamics, critique vs. criticism, finding the playwright's voice and the virtue of writing for the stage.

Grand  
Ballroom

### **NSF Collaboration Project - Faculty Discussion**

#### **Meeting of faculty interested in collaborating with Dr. Michael Alley**

*Moderator: Michael Alley, Ph.D., Virginia Tech*

Virginia Tech, as part of an NSF-sponsored project, has developed a modified section of a technical writing course: 1 credit in the Spring, 2 credits in the Fall, with a summer research experience during the intermittent summer. This course has been successful and Virginia Tech now would like to team with other ACC schools on an NSF proposal to expand the idea. This meeting is for any faculty interested in collaborating on this proposal.

## Poster Presentations: Tuesday, 9:15am - Noon

Seasons Quad

*Note: Presenters will be at their posters from 11:30 a.m. - Noon for questions and feedback.*

### **The Decameron Project**

*Michael East and Emily Perkins, Clemson University*

Adaptation of Boccaccio's book, *Decameron*, into a play following a year of collaborative research by Performing Arts students on stage design and costuming.

### **EQUIS 2 Campaign: Rocket Observations of E-region Neutral Winds Over the Equatorial Region During a Two-month Study**

*Caroline Yount, Clemson University*

This research project aims at studying the neutral wind velocities of the ionospheric E-region to achieve a better understanding of ionospheric dynamics.

### **Resolve Prover for a Verifying Compiler**

*Kim Roche, Clemson University*

I am researching ways of building a mechanical prover using mathematical methods (definitions, proofs, etc.) and the programming language, Resolve, to rigorously verify correct code.

### **Place Bonding and Attachment to the Clemson Campus**

*Kelly Crowley with Bryan Leigh, Kate McDermott, Brooks Bryan, Stephen Bunch, and Keith Davis, Clemson University*

This study is designed to inventory and analyze the campus places to which students are most bonded/attached and to understand the emotional/cognitive processes by which this phenomena occurs.

**GPA: Geriatric Pain Assessment**

*Cariessa McFadden with Lindsay Thomason, Clemson University*

Comparison of a pain assessment tool versus nursing knowledge of the resident to determine pain status of cognitively impaired older adults.

**The Accuracy of Observers' Estimates of Their Own Stereoacuity**

*Christine Beck, Clemson University*

I measured actual and estimated depth perception from 30 observers and found that observers underestimated their stereoacuity particularly for binocular viewing and in low luminances.

**Investigating Appropriate Conditions for Passive and Semi-Active Control Devices**

*Waleed Barnawi, Florida State University*

This research extends existing studies that show that the usage of control devices on structures will reduce their response to seismic activity.

**Advancing Ignition Interlock**

*Samantha Tenenbaum and Michael Sandler, University of Maryland*

The research from this team has shown problems in the use of and compliance with ignition interlock programs and attempts to find ways to improve it.

**Design of a Fiber-Guidance Assembly for Stereotactic Laser Interstitial Thermotherapy of Small Tumors of the Breast**

*Minh Hoang, University of Miami*

The study examines the design and construction a fiber-guidance assembly to be used as a minimally invasive technique for treatment of localized tumors of the breast through the use of laser hyperthermia with the aid of a high resolution imaging system.

**Positive Mood Induction and Facial Affect Recognition in Students Vulnerable to Hypomania**

*Dante Trevisani, University of Miami*

This study examines the effects of positive mood induction on facial affect recognition skills of undergraduates vulnerable to hypomania, a form of bipolar disorder.

**Biologically-Derived, Non-planar, Microlens Arrays**

*Kevin Henderson, University of North Carolina*

A fascinatingly simple molding procedure is extended to replicate the exterior lens structure of the compound eyes of actual insects to fabricate synthetic microlens arrays.

**PACMAN (Infrared Switch Activated Motivational Device to Build Upper Body Strength in Children)**

*Erica Lee and Siroberto Scerbo, University of North Carolina*

The Infrared Switch Activated Motivational Device to Build Upper Body Strength is designed to be versatile for all stages of child development. Triggered by an infrared switch, it uses music or commercial switch-activated toys as motivation.

**Physiological and Pharmacologic Effects of Up4dC in Human Bronchial Epithelia**

*Doug Ornoff, University of North Carolina*

Purine nucleosides are chemical messengers in the lung. In 16HBE14o- cells, endogenous adenosine does not accumulate in the extracellular environment and the half-life is 0.58minutes. A transport protein is likely present.

# Sessions

## Poster Presentations: Tuesday, 9:15am - Noon (continued...)

### **UNC ACCESS Project**

*Nicholas Neptune and Ana Hacic-Vlahovic, et al., University of North Carolina*

The UNC ACCESS (Accessible College Campuses for Everyone Site Surveys) Project is an ongoing assessment of functional wheelchair accessibility in core campus buildings throughout the University of North Carolina sixteen-campus system.

### **An Early Warning System to Identify Erroneous PM fine Data Reported to AirNow**

*Katina Gracien, North Carolina State University*

This project provides the public with reliable air quality information so that they can make the appropriate decisions regarding their activities and health.

### **Experimental Simulation of High-Density Plasma Interaction With Liquid Metal Medium for Inertial Fusion Reactors First Wall Studies**

*Elijah Martin, North Carolina State University*

An advanced design concept for inertial confinement fusion reactors is the use of a circulating liquid barrier to protect the first wall of the target chamber.

### **Monitoring Reactor Power via Intensity of Emitted Cerenkov Radiation in the NCSU PULSTAR Reactor**

*Harsh Desai, North Carolina State University*

A multi-sensor composed of six CdS photo resistors was designed, constructed and tested as a power-monitoring device for the NC State University 1MW PULSTAR reactor.

### **Multi-Step Laser Process for the Production of Metal Nanoparticles With a Narrow Size Distribution**

*Katherine Collett Furr Phillips, North Carolina State University*

By making metal nanoparticle size and shape more uniform, the local field enhancement improves and the optical properties can be studied more effectively.

### **No Compromise - Virginia Tech Solar House 2005**

*David Clark with Brian Atwood, Virginia Tech*

The goal of this project is to develop sustainable ways of building - and thinking about building - through collaborative design and construction.

### **Determining the Utility of Surfactant-Based Capillary Coatings for the Separation of Protein-Dye Complexes by Capillary Electrophoresis With Laser-Induced Fluorescence Detection**

*Jennifer Lubbeck, Wake Forest University*

To facilitate high efficiency separations of proteins by capillary electrophoresis, we have studied double-chained surfactants as capillary coatings under a variety of solution conditions.

## Concurrent E Sessions: Tuesday, 11:00am - Noon

### Seminar Room I

#### Engineering

##### **Digital Image Processing of Infrared Imagery for Remote Sensing Applications**

*Steven Bower, Clemson University*

Infrared images of water surfaces are investigated using digital image processing techniques including dilation, erosion and boundary following. The processed images are used to obtain subsurface information, such as bathymetry.

##### **Development and Analysis of a Deformable Airfoil**

*James Cahill, Georgia Institute of Technology*

Computer and experimental analyses were used to demonstrate the potential of chiral-core topology for reducing drag and increasing aircraft performance.

##### **Comparison of Structural Performance of Steel and Composite Cell Towers**

*Christopher Lindsey, Georgia Institute of Technology*

Finite element analysis of the behavior of composite materials for possible use in the structural design of telecommunication cell towers.

### Seminar Room II

#### Economic Development

##### **Faces of Suburbanization: Demand for Residential Development in the Urban-Rural Fringe**

*Caroline Cunningham and Katherine H. King, Clemson University*

The influence of household characteristics on the demand for household location in urban and urban/rural interface locations within the upstate of South Carolina is estimated.

##### **Sustainability of Transportation Systems in Major and Megacities**

*Christopher Puglisi, Georgia Institute of Technology*

Examines global sustainability trends and reviews the socioeconomic environments and transportation systems of eight major or megacities: Los Angeles, London, Seoul, Cairo, Bogotá, Delhi, Hong Kong, and Sydney.

### Meeting Room I/II

#### Public Health and Psychology

##### **Prevalence of Eating Disorder Behaviors Among Varsity and Club Athletes, Independent Exercisers, and Non-exercisers**

*Vanessa Scaringi, Florida State University*

The current study was designed to examine the impact that athletic participation has on collegiate women with regards to eating disorder symptoms.

##### **Exercise and the Immune Response in Varying Environments**

*Natasha Spencer, Florida State University*

This study investigates the effects of moderate exercise in varying, warm and cold, conditions on the immune system.

# Sessions

Concurrent E Sessions: Tuesday, 11:00am - Noon (continued...)

Meeting Room III/IV

## Language

### **Negotiating Language and Power: Passive Responsibility as Social Action Among Bilingual Salvadoran Immigrant Laborers in Long Island**

*Michael J. Como, Florida State University*

The strategies and tactics employed by bilingual mid-level employees to strengthen their occupational standing in a competitive work environment are examined.

### **Sex Stereotyping in Three Ethnolinguistically Distinct Swiss Groups**

*Mallory Kinlaw, Wake Forest University*

This study explores the relationship between ethnolinguistic identity and culture-specific sex stereotypes in French, Swiss-German, and Italian speaking Swiss college students.

Bell South Auditorium

## Faculty Presentations - Best Practices in Undergraduate Research

### **Publishing Undergraduate Research in a Variety of Disciplines**

*Nicole Hurd, Ph.D., Center for Undergraduate Excellence, University of Virginia*

The University of Virginia's undergraduate research journal is multidisciplinary publication with a student-run editorial board. In this presentation, we will explore the challenges and rewards of publishing research from a variety of subjects in a single journal. We will also look at the role of students as editors and how faculty and students may collaborate in the publishing effort.

### **Strategies for Encouraging Participation in an Honors Thesis Program**

*Kathyrine L. Scheuch, Ph.D., Honors Program, Florida State University*

The FSU Honors in the Major program will share their strategies in recruiting students for the university's honors thesis program.

### **The Journal of Undergraduate Materials Research: Giving a Voice to Future Engineers and Scientists**

*Ben Poquette, Editor in Chief, JUMR, and Davis Eichelberger, with Christelle Jullian, Virginia Tech*

JUMR works to increase cooperation and communication between the English and MSE departments as well as among graduate and undergraduate students. This innovative concept provides an opportunity for exposing and publicizing a generally unacknowledged sector: undergraduate research.

Lunch, Grand Ballroom: Noon - 1:00pm

## Performing Arts (during lunch)

### **History and Performance Styles of Small Group Jazz Artists From the Past 60 Years**

*David Agee, Michael Geib, Juston Brosn and Corey Taylor, Clemson University*

Performance illustrating the research findings on the music styles, melodic traits, harmonic tendencies, and rhythmic patterns of small group jazz artists from the past 60 years.

## Material, Chemical and Polymer Science

### Supramolecular Lyso-phospholipid-Carbon Nanotube Complexes Enable Cellular Studies

*Jessica Moore, Clemson University*

An exploration of fluorescent lyso-phosphatidylethanolamine bound to single-walled carbon nanotubes (CNTs) solubility and interactions with biological membranes that demonstrate SWNTs potential for bioimaging and nanomedicine.

### Ene-diyne-Derived Polyarylenes for Potential Use as Proton Exchange Membranes

*Erin Brocker, Clemson University*

Mono-ortho-dinylarene (MODA) monomers were used to endcap and crosslink linear polyarylene ether sulfones with polyarylenes to yield stable membrane polymers for hydrogen fuel cell applications.

### Porous Silicon: Theory and Applications

*Stephen Hsu, Georgia Institute of Technology*

Effects of nanostructural geometry on the adsorbent properties of etched silicon microelectronics, optimization of gas sensors via production of n- and p-type porous structures, and calibration of effective detection arrays.

### Electrical Properties of CB/ABS Nanocomposites: Are Single Wall Carbon Nanotubes Needed?

*Sidhartha Gupta, Georgia Institute of Technology*

Fabrication of new composites using single-walled-nanotubes (SWNT) and ABS using the same processing methods used for carbon black and ABS composites. Comparison will be made between the two types.

## Access and Equity

### The University as a Workplace: Findings From a Survey of Black Staff

*Rebecca Clark Craps, with S. Joseph Fowler, Jordan Lane and Duncan McLaurin, Clemson University*

The presentation addresses the research, survey and recommendations used to assess the academic workplace at Clemson University from the perspective of minority employees (faculty excluded).

### In Black and White: Educational Disparities in South Carolina Public Schools

*Ashleigh Dennis with K. Asay, R. Estep, C. Hill, R. Hodges, J. McCloy, J. Pryor, B. Rollings and A. Shaw, Clemson University*

Our research, a qualitative study of the educational disparities in South Carolina public schools, aims to understand the actual effects of No Child Left Behind on students, teachers, and schools.

### UNC ACCESS Project

*Nicholas Neptune and Ana Hacic-Vlahovic, University of North Carolina*

The UNC ACCESS (Accessible College Campuses for Everyone Site Surveys) Project is an ongoing assessment of functional wheelchair accessibility in core campus buildings throughout the University of North Carolina sixteen-campus system.

# Sessions

Concurrent F Sessions: Tuesday, 1:15 - 2:45pm (continued...)

Meeting Room III/IV

## Art and History

### Early Koranic Manuscripts: The Blue Koran Debate

*Emily Neumeier, Boston College*

Pages from an early precious copy of the Koran are pieced together to understand one of the most unusual and beautiful manuscripts in Islamic Art.

### Japanese Visionaries: Origins of Traditional Culture and Religion

*Daniel Fishman, Brooks Hamby, Edward Weeks and Paul Wright, Clemson University*

This research showcases two periods in Japanese history in which foreign relations shaped Japan's traditional culture that has become a unique blend of elements clearly adopted from other cultures.

### Political and Socio-Economic Agendas and the British Response to the French Revolution

*Anna Faircloth, Duke University*

The French Revolution catalyzed agitation for political reform in Britain while industrialization simultaneously generated socio-economic distress. My project examines the relationship between these ideologies.

### Relationships and Interactions Amongst Ancient Religions: A Case Study at Ostia

*Anne Arnold, Wake Forest University*

A look at the religious interactions between cults at Ostia, the port of ancient Rome, and how these interactions promoted structural assimilation between religious institutions.

Bell South  
Auditorium

## Faculty Sessions - REU: The NSF Approach to Undergraduate Research

*Moderator: Lisa Benson, Ph.D., Bioengineering, Clemson University*

*Scheduled Participants: Ed Stashko, Ph.D., Organization for Tropical Studies, Duke University,  
Karen Burg, Ph.D., Bioengineering, Clemson University, Ronald Christensen,  
National Science Foundation, Heather Mispagel, CEO, Journal of Young  
Investigators, and Nina Veas, Ph.D., Michelin Corporation*

This session will open with an expert panel giving an overview of the Research Experiences for Undergraduates program at the NSF and a short presentation highlighting components of successful REU sites. This will be followed by an open discussion of topics including recruiting under-represented minority and female students, international REU programs, industry involvement in REU projects, publishing undergraduate research, and the benefits and challenges to universities and departments hosting REU sites.