Research:
Excellence through Collaboration

26th Annual University-Wide Research Symposium
Division of Research and Sponsored Programs
The Center of Excellence in Information Systems Engineering and Management is an interdisciplinary research facility located on the downtown TSU Williams Campus. At the Center, Tennessee State graduate and undergraduate students are presented with opportunities to participate in a genuine research environment. Major areas of research include:

- Astrophysics
- Advanced Control Systems and System Identification
- Applied Mathematics
- Management Information Systems

If you would like more information please call:
Dr. Michael R. Busby, Director
Center of Excellence in Information Systems
(615) 963-7013
http://coe.tsuniv.edu
Dear Colleagues:

Welcome to the 26th Annual University-wide Research Symposium, “Research: Achieving Excellence through Collaboration.” It is indeed exciting to anticipate the scholarly activities of the next few days, featuring posters and presentations by faculty and students from across the curriculum. Together, faculty and students have investigated problems and pursued theories that have led the university to greater levels of achievement, as this year's theme suggests.

As the president of Tennessee State University, I take great pride in the accomplishments we have made in the area of research and the tremendous potential for future success that we possess. TSU currently leads the Tennessee Board of Regents system in funding for sponsored research and I anticipate the same remarkable growth during the next decade, as granting agencies give us the recognition that counts: the receipt of yet more funding for yet more projects. I also look forward to increased participation in sponsored programs from all academic disciplines.

Congratulations to each of our distinguished researchers. We in the TSU community look forward to hearing about your discoveries and your contributions to a body of knowledge that will lead to a better life for us all.

Sincerely,

James A. Hefner  
President

AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER M/F
22 March 2004

Dear Colleagues:

It is an honor and a privilege to welcome you to the 26th Annual University-wide Research Symposium featuring technical presentations and posters by our distinguished researchers, faculty and students. The theme for this year’s symposium, “Research: Excellence Through Collaboration,” embodies the focus and commitment of the University to grow the research enterprise through new partnerships and collaboration.

Research at Tennessee State has experienced phenomenal growth during the past decade. In order to sustain this growth, the University must seek and exploit interdisciplinary collaborative relationships both internally and externally. Collaboration is critically important in continuing our success in research areas that represent our strengths as well as developing new research initiatives that will propel the research enterprise at TSU to new heights. We anticipate the development of new research programs in high-growth areas such as nanotechnology, biotechnology, learning sciences, and computational science through collaboration with various federal agencies, national laboratories, corporations and other universities. We look forward to increased participation in extramurally funded research and sponsored programs by all disciplines at the University.

On behalf of the Division of Research and Sponsored Programs, I commend the outstanding efforts of our researchers, faculty, students and staff in making new discoveries and significant contributions to human knowledge. At Tennessee State, we believe research is essential to excellence in education and enhances the learning experience of our students. We continue to be committed to excellence in every way!

As always, I remain

Sincerely,

Marcus W. Shute

Marcus W. Shute, P.E., Ph.D.
Vice President

Office of the Vice President
The College of Education is pleased to give its full support to the 26th Annual University Wide Research Symposium.

Leslie Drummond Ed.D.
Interim Dean
John Mark Hunter, Ed.D.
Assistant Dean for Public Service and Outreach
Judith Presley, Ph.D.
Assistant Dean for Teacher Education

615.963.5478
# Overview Of Events

## Monday - April 5, 2004

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>8:00 – 11:00</td>
<td>REGISTRATION</td>
</tr>
<tr>
<td>12:00 – 1:00</td>
<td>OPENING SESSION, Dr. Yvonne Freeman, Executive Director, SECME, Inc.</td>
</tr>
<tr>
<td>1:45 – 4:30</td>
<td>GRADUATE STUDENTS - ENGINEERING - PRESENTATIONS</td>
</tr>
</tbody>
</table>

- Location: Humanities Auditorium

## Tuesday - April 6, 2004

<table>
<thead>
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<tbody>
<tr>
<td>8:00 – 11:00</td>
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</tr>
<tr>
<td>9:00 – 11:00</td>
<td>UNDERGRADUATE STUDENTS - ENGINEERING - PRESENTATIONS</td>
</tr>
<tr>
<td>11:00 – 12:30</td>
<td>POSTER SESSIONS</td>
</tr>
<tr>
<td>1:40 – 3:00</td>
<td>KEYNOTE ADDRESS, Dr. Wade Adams, Director, Nanoscale Science &amp; Technology, Rice University</td>
</tr>
<tr>
<td>3:30 – 4:30</td>
<td>POSTER SESSIONS</td>
</tr>
</tbody>
</table>

- Location: Floyd Payne Campus Center

## Wednesday - April 7, 2004

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:00 – 11:00</td>
<td>REGISTRATION</td>
</tr>
<tr>
<td>9:00 – 11:45</td>
<td>GRADUATE STUDENTS - SCIENCE - PRESENTATIONS</td>
</tr>
<tr>
<td>12:30 – 1:45</td>
<td>UNDERGRADUATE STUDENTS - SCIENCE - PRESENTATIONS</td>
</tr>
<tr>
<td>2:00 – 2:30</td>
<td>GRADUATE STUDENTS - SOCIAL SCIENCES &amp; EDUCATION - PRESENTATIONS</td>
</tr>
<tr>
<td>2:45 – 4:00</td>
<td>UNDERGRADUATE STUDENTS - SOCIAL SCIENCES &amp; EDUCATION - PRESENTATIONS</td>
</tr>
</tbody>
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- Location: Floyd Payne Campus Center

## Thursday - April 8, 2004

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>9:00 – 11:30</td>
<td>FACULTY PRESENTATIONS</td>
</tr>
<tr>
<td>12:00 – 2:30</td>
<td>STUDENT AWARDS LUNCHEON (By Invitation Only)</td>
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</table>

- Dr. Calvin Mackie, Founder, Channel Zer0, Associate Professor, Mechanical Engineering, Tulane University

- Location: Women’s Building

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All Posters Should Be Put Up By The End Of The Day Mon. April 5, 2004. Students should be present at their posters 11:00-12:30 and 3:30-4:30 April 6. All Posters Should be Removed by 3:00 PM Thurs., April 8.
Opening Session Speaker

YVONNE B. FREEMAN, Ed.D.
Executive Director
SECME, Inc.

Dr. Yvonne B. Freeman is the Executive Director of SECME, Inc., one of the premier pre-college programs in science, technology, engineering and mathematics for teachers, educational leaders and students, in the nation. SECME currently links 44 member engineering universities, 117 school systems (including more than 900+ K-12 schools) in 18 states, the District of Columbia, and Bahamas, and 70 corporate and government investors. The SECME National Office is located on the campus of the Georgia Institute of Technology in Atlanta, GA. Dr. Freeman was previously Vice President and Chief Operations Officer of Integra Ventures, Inc., responsible for developing a corporate business base in educational research and program development, medical and health care management, and diagnostic technologies and training.

As a NASA Associate Administrator from 1993 to 1996, Dr. Freeman was the highest ranking African American female in NASA in the United States. She provided executive leadership in the development of equal employment opportunity and minority education programs and managed funding for research centers in Historically Black Colleges and Universities, Hispanic Serving Institutions, and Tribal Colleges and other institutions with a predominance of minority enrollment. She managed NASA enterprises with a $120 million annual budget, of which $80 million went toward education and research program allocations, including scholarship and fellowship programs to support research centers at seven minority institutions.

She received the BA degree from Fisk University, Master of Education from Loyola University at Los Angeles, and Doctor of Education from the University of Massachusetts, Amherst. She is also a graduate of the Executive Management in Business Administration Program at UCLA's John E. Anderson Graduate School of Management.

Opening Session

MONDAY - APRIL 5, 2004  12:00 - 1:00  HUMANITIES AUDITORIUM

Master of Ceremonies  DR. E. LEWIS MYLES, Symposium Chair
Greetings  DR. JAMES HEFNER, President, Tennessee State University
Welcome  DR. MARCUS W. SHUTE, Vice President, Research and Sponsored Programs
Introduction of Speaker  DR. TODD GARY, COE:ISEM
Opening Speaker  DR. YVONNE FREEMAN, Executive Director, SECME, Inc.
Key Note Speaker

WADE ADAMS, Ph.D.

Director, Center for Nanoscale Science and Technology
Rice University

Dr. Wade Adams is the Director of the Center for Nanoscale Science and Technology at Rice University, which coordinates and supports nanoscience and nanoengineering research of more than 80 faculty members. He has more than 190 research publications, four patents (one licensed), and has given more than 500 technical presentations. Prior to heading the world-class research team at Rice University, Dr. Adams served in the senior executive ranks of the U.S. Air Force as Chief Scientist of the Materials and Manufacturing Directorate of the Air Force Research Laboratory at Wright-Patterson Air Force Base. Dr. Adams was educated at the U.S. Air Force Academy, Vanderbilt University, and the University of Massachusetts. For the past 32 years he has conducted research in polymer physics, concentrating on structure-property relations in high-performance organic materials. He is internationally known for his research in high-performance rigid-rod polymer fibers, X-ray scattering studies of fibers and liquid crystalline films, polymer dispersed liquid crystals, and theoretical studies of ultimate polymer properties. He is a Fellow of the American Physical Society and the Air Force Research Laboratory, and represents Rice University as the Chairman of the Board of the Texas Nanotechnology Initiative.

Be a Scientist - Save the World

Presentation Overview

Energy is both the single most important problem facing humanity today and a magnificent scientific opportunity. We will need a minimum of ten terawatts (the equivalent of 150 million barrels of oil) per day from a new, clean energy source by 2050. Solving this problem will demand revolutionary breakthroughs in the physical sciences and engineering, and particularly in nanotechnology. This talk will discuss the magnitude of the problem, some enabling nanotechnology revolutions that will be needed to address the problem, the people/workforce issues that impinge on the problem, and some thoughts on how to organize to solve the problem.

Keynote Address

<table>
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<th>TUESDAY - APRIL 6, 2004 1:40 - 3:00</th>
<th>FLOYD-PAYNE CAMPUS CENTER FORUM</th>
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<tr>
<td>Welcome</td>
<td>DR. MARCUS W. SHUTE, Vice President, Research and Sponsored Programs</td>
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<tr>
<td>Introduction of Speaker</td>
<td>DR. MARIA THOMPSON, Director, Research and Sponsored Programs</td>
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<tr>
<td>Keynote Address</td>
<td>DR. WADE ADAMS, Director, Center for Nanoscale Science and Technology, Rice University</td>
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Awards Luncheon Speaker
CALVIN MACKIE, Ph.D.
Co-founder, Channel ZerO
Associate Professor, Mechanical Engineering
Tulane University

After graduating from high school in New Orleans, LA in 1985, Calvin Mackie was conditionally accepted into Morehouse College where he began his college career in remedial reading after attaining a weak score on the SAT college entrance examination. Over the next eleven years, Mackie embarked on an unbelievable journey of academic and personal achievement that no man-made test could have predicted.

As an undergraduate, Mackie was a dual-degree achiever. In 1990, he earned a Bachelor of Mechanical Engineering degree from Georgia Tech and a Bachelor of Science in Mathematics from Morehouse College, where he graduated magna cum laude. Two years later, he earned a Master of Science in Mechanical Engineering from Georgia Tech. In March 1996, he was conferred the Doctor of Philosophy degree in Mechanical Engineering.

A member of the Phi Beta Kappa, Pi Tau Sigma and Tau Beta Pi National Honor Societies, his passion for scholarship is well established. While pursuing his doctorate degree, he served as an instructor of mathematics at Morehouse College. Committed to community service, his involvements have included the High School Outreach Program, Big Brothers & Big Sisters and the NAACP. He is an active member of the National Speaker Association, 100 Black Men of Metro New Orleans and a former member of the Board of Directors of Big Brothers/Sisters of Southeast Louisiana.

In 1992, he co-founded Channel ZerO, an educational and motivational consulting company and has been active on the public speaking circuit for over ten years giving motivational presentations to numerous educational, civic and corporate institutions. In addition to his involvement with Channel ZerO, Mackie is a tenured associate professor of mechanical engineering at Tulane University in New Orleans, LA, specializing in heat transfer and fluid dynamics. Recently, Mackie received the 2002 Black Engineer of the Year Award for College Level Educator, 2002 New Orleans Daily News Weekly Trailblazer Award, 2003 National Title One Distinguished Graduate for Louisiana and the Pi Tau Sigma/ASME Excellence in Teaching Award in Mechanical Engineering for 2000 and 2002. In November 1999, he received a patent on a device to retrofit luggage stowbays on 737 and 757 Boeing commercial airliners. Furthermore, he authors a motivational column entitled, “Think About It!” for the Black Collegian Magazine and is married to the former Miss Tracy Ransom.

Awards Presentation Luncheon  (By Invitation Only)

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<tr>
<th>Thursday</th>
<th>April 8, 2004</th>
<th>12:00 Noon - 2:30 p.m.</th>
<th>Women’s Building</th>
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<tr>
<td>Welcome</td>
<td>Dr. James A. Hefner, President</td>
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<td>Introduction of Speaker</td>
<td>Dr. Marcus W. Shute, Vice President, Research and Sponsored Programs</td>
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<td>Awards Luncheon Speaker</td>
<td>Dr. Calvin Mackie, Founder, Channel ZerO, Associate Professor, Mechanical Engineering, Tulane University</td>
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<tr>
<td>Presentation of Awards</td>
<td>Dr. Maria Thompson, Director, Research and Sponsored Programs</td>
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<tr>
<td>Acknowledgements and Closing Remarks</td>
<td>Dr. E. Lewis Myles</td>
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1951-2004 Celebrating Over 50 Years of Service

Doctorate of Philosophy programs
- Computer and Information Systems Engineering

Master of Science Degree program
- Computer and Information Systems Engineering

Master of Engineering Degree programs
- Civil Engineering, Electrical Engineering, Environmental Engineering, Manufacturing Engineering, and Mechanical Engineering

Bachelor of Science Degree programs
- Architectural Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, and Aeronautical Industrial Technology and Computer Science

Excellence in Engineering

Tennessee State University
College of Engineering Technology and Computer Science
A Half Century of Service
Sessions

ORAL PRESENTATION BY GRADUATE STUDENTS
COMPUTER SCIENCE, ENGINEERING, PHYSICS AND MATH
SESSION CHAIR: Ashiya Johnson, Department of Biological Sciences

Monday, April 5, 2004
FLOYD-PAYNE CAMPUS CENTER FORUM, ROOM 210

1:45-2:00
A-1 REMOVAL OF DYNAMIC OFFSET SIGNAL FROM LOAD CELL INSTRUMENTED WHEELS
  *Kevin R. Woods, W. Mark Richter, Russell Rodriguez, and Peter W. Axelson. Advisor: Mohammad Bodruzaman, Department of Electrical and Computer Engineering

2:00-2:15
A-2 TERRESTRIAL PLANETS IN OUR SOLAR SYSTEM
  *Christopher Jett, Advisor: Geoffrey Burks, Department of Physics and Mathematics and Center of Excellence in Information Systems and Engineering Management

2:15-2:30
A-3 IMPLEMENTATION OF A REMOTE MONITORING SYSTEM TO AID IN THE PREVENTION OF SUDDEN INFANT DEATH SYNDROME (SIDS)
  *Kimberly Gold. Advisor: Mohammad Bodruzaman, Department of Electrical and Computer Engineering

2:30 - 2:45
A-4 REDUCING VARIABILITY IN WHEELCHAIR PROPULSION OUTCOMES

2:45-3:00
A-5 DETERMINING THE SPEED OF THE PULSE WAVE TRAVELING BETWEEN THE HEART AND FINGER USING DYNAMIC ECG SIGNALS
  *Gemiina Carey. Advisor: Mohammad Bodruzaman, Department of Electrical and Computer Engineering

3:00 - 3:15
A-6 INTELLIGENT PATTERN RECOGNITION SYSTEM FOR THE DIAGNOSIS OF NEUROMUSCULAR DISORDERS
  *April D. Bush. Advisor: Mohammad Bodruzaman, Department of Electrical and Computer Engineering

3:15 - 3:30
A-7 MICROBIAL ADAPTATIONS AND CONTAMINANT-DEGRADATION STRATEGIES OF BACTERIA IN KARST AQUIFERS.
  *Ryan Fitzwater, D. Metge. Advisor: Tom Byl, Department of Civil and Environmental Engineering, United States Geological Survey

3:30 - 3:45
A-8 A TCP/IP COMMUNICATION SCHEME FOR TELEROBOTIC CONTROL OF MOBILE ROBOTS
  *Navdeep S. Chawla. Advisor: Amir Shirkhodaie, Department of Mechanical & Manufacturing Engineering

3:45 - 4:00
A-9 VISUAL SURFACE ASSESSMENT FOR TRAVERSABLE PATH PLANNING OF MOBILE ROBOTS
  *Rachida Amrani. Advisor: Dr. Amir Shirkhodaie, Department of Mechanical & Manufacturing Engineering

4:00 - 4:15
A-10 A TEXT-BASED PATTERN RECOGNITION SOFTWARE FOR AIRPLANE REPAIR DIAGNOSIS
  *Yvette Rankin, Center of Excellence in Information Systems and Engineering Management. Advisor: Montanez Wade, Tennessee Space Grant Consortium

4:15-4:30
A-11 NANOINDENTATION EXPERIMENTAL TECHNIQUE USING NANOTEST 550 FOR THE MECHANICAL CHARACTERIZATION OF ENGINEERING MATERIALS
  *Oluwemi Akinbola. Advisor: Landon Onyebueke, Department of Mechanical Engineering

All Abstracts can be found at www.tnstate.edu/research/RSP.htm
ORAL PRESENTATION BY GRADUATE STUDENTS
COMPUTER SCIENCE, ENGINEERING, PHYSICS AND MATH
SESSION CHAIR: Ashiya Johnson, Department of Biological Sciences

Tuesday, April 6, 2004
FLOYD-PAYNE CAMPUS CENTER FORUM, ROOM 210

9:00-9:15
B-1 EVALUATING OXYGEN-RELEASING COMPOUNDS TO ENHANCE TOLUENE BIODEGRADATION BY FREE-LIVING BACTERIA
*LyTreese Hampton, Lashun King, Khalid Woods. Advisor: Tom D. Byl, Department of Civil and Environmental Engineering, United States Geological Survey

9:15-9:30
B-2 THE SEARCH FOR TERRESTRIAL PLANETS
*Kitwana Carter. Advisor: Geoffrey Burks, Department of Physics and Mathematics and Center of Excellence in Information Systems and Engineering Management

9:30-9:45
B-3 EXTREMOPHILES
*Patrice Mitchell. Advisor: Geoffrey Burks, Department of Physics and Mathematics and Center of Excellence in Information Systems and Engineering Management

9:45-10:00
B-4 LIFE ON OTHER PLANETS
*Tatiana N. Whitman. Advisor: Geoff Burks, Department of Physics and Mathematics and Center of Excellence in Information Systems and Engineering Management

10:00-10:15
B-5 USING THE DEPARTMENT OF DEFENSE'S SMALL BUSINESS INNOVATION RESEARCH PROPOSALS TO ENHANCE AN UNDERGRADUATE RESEARCH EXPERIENCE

10:15-10:30
B-6 TENNESSEE STATE UNIVERSITY'S ISOLATED GRAVITY EXPERIMENTAL REDUCTION SYSTEM (T.I.G.E.R.S)

10:30-10:45
B-7 SEARCHING FOR YOUNG PLANETARY SYSTEMS
*Frank Alston. Advisor: Gregory W. Henry, Center of Excellence in Information Systems and Engineering Management

10:45-11:00
B-8 UNCERTAINTY MEASUREMENT AND ANALYSIS OF COORDINATE MEASUREMENT MACHINES
*Yashica Hunt. Advisor: Amir Shirikhodaie, Department of Mechanical and Manufacturing Engineering

ORAL PRESENTATION BY SCIENCE GRADUATE STUDENTS
SESSION CHAIR: Jason Jordan, Department of Biological sciences

Wednesday, April 7, 2004
FLOYD-PAYNE CAMPUS CENTER FORUM, ROOM 210

9:00-9:15
C-1 TRIBUTYLTLIN EXPOSURE CAUSES A DECREASE IN GRANZYM B, PERFORIN AND PHOSPHORYLATED CREB LEVELS IN HUMAN NATURAL KILLER CELLS

9:15 - 9:30
C-2 BRIEF EXPOSURE TO THE AGRICULTURAL FUNGICIDE ZIRAM CAUSES PERSISTENT INHIBITION OF CYTOTOXIC FUNCTION IN NK CELLS
*Thynelce Taylor, S. Wilson, and M. Whalen. Advisor: M. Whalen, Department of Chemistry

9:30 - 9:45
C-3 EFFECTS OF BRIEF TRIBUTYLTLIN EXPOSURE ON MAP KINASES p38 AND p44/42 IN HUMAN NATURAL KILLER CELLS

All Abstracts can be found at www.tnstate.edu/research/RSP.htm

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Special Thanks to the National Institute of Health

The Extramural Associates (EA) Program, now in its 25th year, was established at the NIH to assist women and under-represented minority institutions in their efforts to acquire and manage external resources in support of biomedical and behavioral research and research training. Since its inception more than 250 individuals have completed EA Program residency training and 70 schools have received the Extramural Associates Research Development Award (EARDA). Tennessee State University has been an EARDA institution for seven years.

EARDA sponsors mini-grants to encourage research by new investigators. The goals of these grants are to:

- Strengthen the research infrastructure in the Biomedical and Behavioral Sciences
- Increase the University’s Biomedical capacity to conduct research.
- Generate more grants and contracts funding for the University

For More Information,
Dr. Matthew A. Kinnard, Program Director
(301) 435-2736
kinnardm@mail.nih.gov
9:45-10:00
C-4  HOME REFRIGERATION PRACTICES OF CONSUMERS BY AGE, EDUCATION AND INCOME
  *Cynthia Agyemang.  Advisor: Sandria L. Godwin, Department of Family and Consumer Sciences

10:00-10:15
C-5  ETHANOL-INDUCED EXPRESSION OF PROTEIN KINASE C IN VASCULAR SMOOTH MUSCLE CELLS
  *Ashiya Johnson, Charlie Mtshali.  Advisor: Benny Washington, Department of Biological Sciences

10:15-10:30
C-6  VIOLACEIN AND THE ROLE IT PLAYS IN QUORUM SENSING IN CHROMOBACTERIUM VIOLACEUM
  *Antionette Gaston.  Advisors: Anthony Ejiofor and Terrance Johnson, Department of Biological Sciences

10:30-10:45
C-7  SOLAR BRIGHTNESS VARIABILITY AND THE EVOLUTION OF LIFE ON EARTH

10:45-11:00
C-8  STRESS PROTEINS & CANCER
  *Carolyn Jackson.  Advisors: Todd Gary and E. Lewis Myles, Center of Excellence in Information Systems and Engineering Management, Institute of Agricultural and Environmental Sciences and Department of Biological Sciences

11:00-11:15
C-9  THE EFFECT OF ECHINACEA EXTRACT ON HEAT SHOCK PROTEINS IN CANCER CELL LINE BT549
  *Clifton Randell, Ugochi N. Ike, Todd Gary and E. Myles.  Advisors: Todd Gary and E. Myles, Center of Excellence in Information Systems and Engineering Management, Institute of Agricultural and Environmental Sciences and Department of Biological Sciences

1:15-11:30
C-10  THE ANTI-PROLIFERATIVE EFFECT OF ECHINACEA PALLIDA ON BT549 CANCER CELL LINE
  *S. Nicole Driggins, Dr. E. Lewis Myles, Dr. Todd Gary, Biological Sciences, Center of Excellence in Information Systems and Engineering Management, Institute of Agricultural and Environmental Sciences, Biological Sciences and Center of Excellence in Information Systems and Engineering Management

ORAL PRESENTATIONS BY SCIENCE UNDERGRADUATE STUDENTS
SESSION CHAIR: Monique McCallister, Department of Biological Sciences

WEDNESDAY, April 7, 2004  FLOYD-PAYNE CAMPUS CENTER FORUM, ROOM 210

12:30-12:45
D-1  BIOCHEMICAL PROFILE OF BACTERIAL ISOLATES FROM THE TENNESSEE COPPER BASIN
  *Keesa Duke.  Advisors: Terrance L. Johnson and Anthony O. Ejiofor, Department of Biological Sciences

12:45-1:00
D-2  FLUORESCENCE BIOLOGICAL ANALYSIS (FBA) FOR ASTROBIOLOGY EXPLORATION OF EUROPA

1:00 - 1:15
D-3  THE INFLUENCE OF DAM GENOTYPE ON MEAT GOAT CARCASS TRAITS
  *Bridget Donnelly, R. Browning, Jr., S. H. Kebe, C. Chisley, O. Phelps, T. Payton, M. Byars.

1:15 - 1:30
D-4  THE EXPRESSION OF C/EBP ALPHA AND C/EBP BETA IN THE CANCER CELL LINE BT549 AFTER EXPOSURE TO THE PLANT EXTRACT OF HYPERICUM ANTHOS
  *Alicia Cleveland.  Advisors: Todd Gary, E. Lewis Myles, Department of Biological Sciences; Center of Excellence in Information Systems and Engineering Management, Institute of Agricultural and Environmental Sciences

1:30-1:45
D-5  INVESTIGATIONS OF ANTI-CANCER COMPOUNDS FROM ROOT EXTRACTS OF ECHINACEA
  *Lakeshia N. Wright, Leslie Buggs, Amber Collins, Todd Gary and E. Lewis Myles, Advisor. Todd Gary and E. Lewis Myles, Center of Excellence in Information Systems and Engineering Management, Institute of Agricultural and Environmental Sciences and Department of Biological Sciences

All Abstracts can be found at www.tnstate.edu/research/RSP.htm
ORAL PRESENTATIONS BY SOCIAL SCIENCES AND EDUCATION GRADUATE STUDENTS
SESSION CHAIR: Aimee Williams, CO-CHAIR: Alicia Cleveland, Department of Biological Sciences

WEDNESDAY, April 7, 2004        FLOYD-PAYNE CAMPUS CENTER FORUM, ROOM 210

2:00-2:15
E-1 APPLICATION OF THE TRANSTHEORETICAL MODEL IN DETERMINING PHYSICAL ACTIVITY PATTERNS IN AFRICAN AMERICAN COLLEGE STUDENTS
  * Terry Davis, Advisor: Dean Roberts, Department of Teaching & Learning

2:15-2:30
E-2 "THE RAW MATERIAL OF CONQUEST": THE MEANING OF LILY BART'S BODY IN EDITH WHARTON'S THE HOUSE OF MIRTH
  * Dana Kennedy, Advisor: Emily Orlando, Department of Languages, Literature and Philosophy

ORAL PRESENTATIONS BY SOCIAL SCIENCES AND EDUCATION UNDERGRADUATE STUDENTS
SESSION CHAIR: Aimee Williams, CO-CHAIR: Alicia Cleveland, Department of Biological Sciences

WEDNESDAY, April 7, 2004        FLOYD-PAYNE CAMPUS CENTER FORUM, ROOM 210

2:45 - 3:00
F-1 SOCIOCULTURAL ATTITUDES, BODY IMAGE, AND SKIN COLOR SATISFACTION: AN EVALUATION OF AFRICAN AMERICAN COLLEGE WOMEN
  * Jessica Chimere Bell. Advisor: Wendy Jordanov, Department of Psychology

3:00-3:15
F-2 HEALTH-RELATED FACTORS EXERCISE, OBESITY, AND DEPRESSION
  * Marico Settles. Advisor: Barbara Kilbourne, Department of Sociology

ORAL PRESENTATIONS BY FACULTY
SESSION CHAIR: Nefeteria Coffee, Department of Biological Sciences

THURSDAY, April 8, 2004        FLOYD-PAYNE CAMPUS CENTER FORUM, ROOM 210

9:00-9:15
G-1 PARACRYSTALLINE THEORY APPLIED TO LIQUID CRYSTAL ACCOUNTS FOR THE EXPERIMENTALLY UNDETECTED MESOPHASE FEATURE
  * Moin Sarkar, Department of Physics and Mathematics.

9:15 - 9:30
G-2 IMPROVING THE INCOME AND FOREST STEWARDSHIP OF MINORITY AND LIMITED RESOURCE LANDOWNERS IN TENNESSEE
  * Nathaniel S. Appleton, Stephen H. Kotison Jr., Carter Catlin and Joshua Idiassi, Institute of Agricultural and Environmental Research

9:30 - 9:45
G-3 FROM BLUEPRINT TO HOUSE: USING METAPHORS TO TEACH OBJECT ORIENTED PROGRAMMING LANGUAGES: JAVA
  * Montanye A. Wade, Tennessee Space Grant Consortium

9:45 - 10:00
G-4 MIAC, THE FIRST "VIRTUAL COLLABORATION" OF MINORITY INSTITUTIONS FOCUSED ON ASTROBIOLOGY
  * Judy Butler, Todd Gary, and E. Lewis Myles. Center of Excellence in Information Systems and Engineering Management, and Department of Biological Sciences

10:00 - 10:15
G-5 ARE WE PREPARED FOR AGRICULTURAL BIOTERRORISM ON CROPS?
  * Margaret T. Mmbaga and Frank A. Mrema. Institute of Agricultural and Environmental Research

10:15 - 10:30
G-6 POINSETTIA CONSUMER SURVEY REVEALS PREFERRED CULTIVARS
  * C. Catanazaro, H. Kamake and S. Bhati, Institute of Agricultural and Environmental Research

All Abstracts can be found at www.tnstate.edu/research/RSP.htm
G-7 PERFORMANCE OF POINSETTIA CULTIVARS EVALUATED IN 2003
*C. Catanzaro, H. Kamake, And S. Bhatti. Institute of Agricultural and Environmental Research

G-8 RATIONALES OF PARENTS’ OPERATING HOME SCHOOLS IN DAVIDSON COUNTY, TN
*Denise Dunbar, Tiyanu Bullock, Erika Morton, Lendozia Edwards. Department of Educational Administration

All Posters Should Be Put Up By The End Of The Day Monday, April 5, 2004. Students Should Be Present At Their Posters 11:00 -12:30 and 3:30-4:30 April 6. All Posters Should be Removed by 3:00 PM Thursday, April 8.

FACULTY POSTER PRESENTATIONS
SESSION CHAIRS: Sarabjit Bhatti and Deborah Long, Institute of Agricultural and Environmental Research

FLOYD-PAYNE CAMPUS CENTER

H-1 A SURVEY TRAP TO MONITOR ADULT FLATHEADED BORER ACTIVITY IN NURSERIES
*Jason Oliver, D., Fure, N. Youssef, and W. Klingeman, Institute of Agricultural and Environmental Research

H-2 TRIBUTYLtin EXPOSURE ALTERS THE PHOSPHORYLATION OF PROTEIN TYROSINE KINASES IN HUMAN NATURAL KILLER CELLS.
*Martet Whalen and S. Ghazi, Department of Chemistry

H-3 SOUTHERN AGRICULTURAL BIOTECHNOLOGY CONSORTIUM PROJECT FOR UNDERSERVED COMMUNITIES: ON-FARM DEMONSTRATIONS AND RELATED ACTIVITIES
*Fisseha Tegegne, A. Aziz, R. Sauer, S. Muhammad, and E. Ekanem, Institute of Agricultural and Environmental Research

H-4 ASSESSING THE FEASIBILITY OF USING A RAPID DETECTION METHOD FOR MEASURING MICROBIAL CONTAMINATION IN HOME REFRIGERATORS
*Fur-Chi Chen, S.L. Godwin, L. Spell-Henderson, and C. Thompson, Institute of Agricultural and Environmental Research

H-5 STUDENT PERCEIVED NEEDS IN CLINICAL SUPERVISION
*Mary T. Fitzgerald and *Niqueka S. Sims, Department of Speech Pathology and Audiology

H-6 EVALUATION OF CHICKEN MICROSONATE PRIMERS FOR POSSIBLE UTILITY AS GENETIC LINKAGE MARKERS FOR GUINEA FOWL
Samuel Nahashon, N. Adepe, A. Akuley-Amenyenu and D. Wright, Institute of Agricultural and Environmental Research

H-7 EFFECTS OF COLD STRESS ON THE ACTIVITY OF CATALASE IN LEUCANTHEMUM MAXIMUM ‘SILVER PRINCESS’
*Siping Zhou, and R. J. Sauer, Institute of Agricultural and Environmental Research

H-8 REGENERATION OF THE TENNESSEE CONEFLOWER IN VITRO
*Roger Sauer, M. T. Mmbaga and S. Zhou, Institute of Agricultural and Environmental Research

H-9 TRICLOYPR LONGEVITY IN SOIL
*Desh. Duseja, Myang A. Suh, and B. Sheshachala, Department of Agricultural Sciences, Institute of Agricultural and Environmental Research

H-10 SHOOT REGENERATION FROM TISSUES OF PHLOX PANICULATA L. AND MONARDA DIDYMMA
*Sarabjit M. Bhatti and Roger Sauer, Institute of Agricultural and Environmental Research

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GRADUATE POSTER PRESENTATIONS
SESSION CHAIRS: Sarabjit Bhatti and Deborah Long, Institute of Agricultural and Environmental Research

FLOYD-PAYNE CAMPUS CENTER

I-1 INTELLIGENT PATTERN RECOGNITION SYSTEM FOR THE DIAGNOSIS OF NEUROMUSCULAR DISORDERS
*April D. Bush. *Advisor: Mohammad Bodrussaman, Department of Electrical and Computer Engineering

I-2 REDUCING VARIABILITY IN WHEELCHAIR PROPULSION OUTCOMES

I-3 DESIGN OF AN INTELLIGENT CONTROL SYSTEM FOR AN UNMANNED AERIAL VEHICLE
*Charles D. McCurry. Advisor: Zein-Sabato, Department of Electrical and Computer Engineering

All Abstracts can be found at www.tnstate.edu/research/RSP.htm
I-4 INTELLIGENT HUMAN ROBOT INTERACTION USING BAYESIAN NETWORKS  

I-5 COMPARISON OF BIOLUMINESCENT BACTERIA AND OXYGEN CONSUMPTION AS INDICATORS OF WATER QUALITY  
*Dominic Anako, Janique Suher, and Paul Frymier (UT, Knoxville). Advisor: Tom D. Byl, Department of Civil and Environmental Engineering

I-6 COUNTERACTING PROCRASTINATION THROUGH THE USE OF SELF-REGULATION STRATEGIES  
*Linda S. Burks and W. Jordanov. Advisor: Wendy Jordanov, Department of Psychology

I-7 SOCIOCULTURAL ATTITUDES, BODY IMAGE, AND SKIN COLOR SATISFACTION: AN EVALUATION OF AFRICAN AMERICAN COLLEGE WOMEN  
*Jessica Chimere Bell and W. Jordanov. Advisor: Wendy Jordanov, Department of Psychology

I-8 EFFECT OF ORGANOCHLORINE PESTICIDES ON INTERLEUKIN SECRETION BY HUMAN LEUKOCYTES.  
*Tatia Beach, A. Reed and M. Whalen. Advisor: Margaret Whalen, Department of Chemistry

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UNDERGRADUATE POSTER PRESENTATIONS
Session Chairs: Sarabjit Bhatti and Deborah Long, Institute of Agricultural and Environmental Research

FLOYD-PAYNE CAMPUS CENTER

J-1 SUPPLEMENTS TO ENHANCE GROUNDWATER-MICROBIAL GROWTH AND BIODGRADATION PROCESSES  
*LelMiracle Hendling and Patricia Burton. Advisor: Tom D. Byl, Department of Civil and Environmental Engineering

J-2 THE IMPORTANCE OF HIGH-DISPERSION OPTICAL SPECTROSCOPY TO THE ANALYSIS OF STELLAR DATA  
*Brent Eugene Wright Sr. Advisors: O.N. Bignall and J.A. Eaton, Department of Physics and Mathematics

J-3 DIFFERENT METHODS OF PLANET FINDING  
*Benjamin Simmons. Advisor: Geoffrey Burks, Department of Physics and Mathematics and Center of Excellence in Information Systems and Engineering Management

J-4 COUNTERACTING PROCRASTINATION THROUGH THE USE OF SELF-REGULATION STRATEGIES  
*Linda S. Burks, and W. Jordanov. Advisor: Wendy Jordanov, Department of Psychology

J-5 SOCIOCULTURAL ATTITUDES, BODY IMAGE, AND SKIN COLOR SATISFACTION: AN EVALUATION OF AFRICAN AMERICAN COLLEGE WOMEN  
*Jessica Chimere Bell, and W. Jordanov. Advisor: Wendy Jordanov, Department of Psychology

J-6 IMMUNOMODULATION OF HUMAN NATURAL KILLER CELL CYTOTOXIC FUNCTION BY ORGANOCHLORINE PESTICIDES  
*Adrian Reed, L. Dzon, B. Loganathan, and M. Whalen. Advisor: M. Whalen, Department of Chemistry

J-7 EFFECTS OF COMBINATIONS OF ORGANOCHLORINE COMPOUNDS ON THE CYTOTOXIC FUNCTION OF HUMAN NATURAL KILLER CELLS.  
*Marilyn Pruitt, A. Reed, B. Loganathan and M. Whalen. Advisor: Margaret Whalen, Department of Chemistry

J-8 EFFECT OF THE COMBINATION OF LOW DOSES OF NICKEL AND COPPER IONS ON GLUTATHIONE LEVELS HUMAN PROGENITOR U937 CELLS  
*Shahandas Harris. Advisor: William Y. Bodi, Department of Chemistry

J-9 EFFECT OF LOW DOSES OF AN ANALOG OF PARAOQUAT ON U937 CELLS  
*Tiananaitisha Newell Brooke Henderson, Justin Anderson, Peter Iyere, Lonnie Sharpe, Samuel E. Adunyah. Advisor: William Y. Bodi, Department of Chemistry

J-10 TRICLOPYR LONGEVITY IN SOIL.  
*Desh. Duseja, Miyang A. Suh, and B. Sheshachala, Department of Agricultural Sciences, Institute of Agricultural and Environmental Research

J-11 PERFORMANCE OF POINSETTIA CULTIVARS EVALUATED IN 2003  
C. Catanzaro, H. Kamake, And S. Bhatti, Institute of Agricultural and Environmental Research

J-12 IMMUNOTOXIC EFFECT OF PENTACHLORPHENOL ON HUMAN NATURAL KILLER (NK) CELLS CAN BE DIMINISHED BY NK STIMULATORY INTERLEUKINS  
*Telpriore Tucker, A. Reed, B. Loganathan, and Margaret Whalen. Advisor: M. Whalen, Department of Chemistry

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330 Tenth Avenue North, Box 141
Nashville, TN 37203-3401
Main Office: 615.963.7231

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# Symposium Layout

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A= Grad Students: Computer Science, Engineering, Physics and Math
B= Undergrad Students: Computer Science, Engineering, Physics and Math
C= Grad Students: Sciences
D= Undergrad Students: Sciences
E= Grad Students: Social Sciences and Education
F= Undergrad Students: Social Sciences and Education
G= Faculty

STUDENT AWARDS LUNCHEON
Dr. Calvin Mackie,
Speaker
(By Invitation Only)
Judges

- Dr. Eugene Collins, Fisk University
- Dr. George Hull, Jr., Prof. Emeritus, Fisk University
- Dr. Sanjutka Hota, Fisk University
- Dr. Justus Ike, Fisk University
- Mrs. Patricia McCarro, Fisk University
- Dr. Robert Wingfield, Fisk University
- Dr. Mukherjee, Meharry Medical College
- Dr. Evangeline Motley, Meharry Medical College
- Dr. Daryl Hood, Meharry Medical College
- Dr. Carlotta Berry, Tennessee State University
- Dr. Orville Bignall, Tennessee State University
- Dr. Richard Browning, Jr., Tennessee State University
- Dr. Anthony Ejiofor, Tennessee State University
- Dr. Johanna Grimes, Tennessee State University
- Dr. Lois W. Harlston, Tennessee State University
- Dr. Liang Hong, Tennessee State University
- Mrs. Anne Ilvarsson, Tennessee State University
- Dr. Jeanetta Jackson, Tennessee State University
- Dr. Mohammad R. Karim, Tennessee State University
- Dr. Gregory Komives, Tennessee State University
- Dr. Makonnen Lema, Tennessee State University
- Dr. Brenda McAdory, Tennessee State University
- Dr. Oscar Miller, Tennessee State University
- Dr. Cosmos O. Okoro, Tennessee State University
- Dr. Tamara Rogers, Tennessee State University
- Ms. Elizabeth A. Shute, Tennessee State University
- Dr. Surendra P. Singh, Tennessee State University
- Dr. William Spencer, Tennessee State University
- Dr. Artenzia Young-Seigler, Tennessee State University
- Dr. Jennifer Stewart-Wright, Tennessee State University
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2003 Presentation Winners

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<tr>
<td>1st</td>
<td>Undergraduate Oral Presentation</td>
<td>Lashun King</td>
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<td>Undergraduate Oral Presentation</td>
<td>Marcell L. Pickens II &amp; La Tasha D. Taylor</td>
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Deborah Edmondson, PT, Ed.D.
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Patricia King-Baker, PT, MA, MTC
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The College of Arts and Sciences is committed to excellence in teaching and advising, research and creative activity, and public service. The College aims to provide students with a solid academic foundation upon which to pursue lifelong learning and build successful lives and careers.

We believe that the promotion of active, inquiry-based learning communities, revolving around faculty and student research is paramount in the preparation of students for careers in the 21st century. In building these learning communities, we are proud of the work of our faculty in securing external funds to support their research and to provide research training opportunities for students.

As the College of Arts and Sciences continues to build on a legacy of scholarly excellence and service, we are indebted to the faculty and students who present research papers to scholarly audiences, publish books and journal articles and apply research findings to advance public policy. The scholarly contributions of these faculty and students will help to sustain this University for future generations.

William D. Lawson, Ph.D.
Dean

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