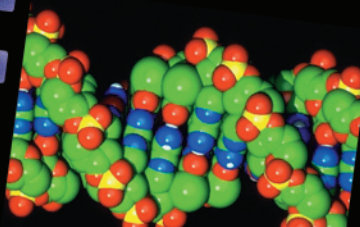
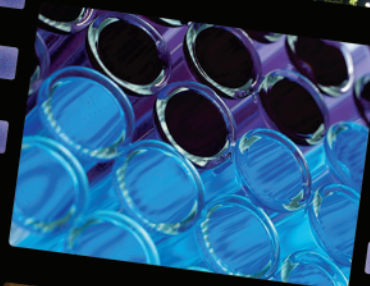


29TH ANNUAL  
UNIVERSITY-WIDE  
RESEARCH SYMPOSIUM

RESEARCH:  
CELEBRATING  
EXCELLENCE

MARCH 26-29, 2007

TENNESSEE STATE UNIVERSITY  
NASHVILLE, TENNESSEE





Tennessee State University 

Institute of Agricultural and Environmental Research

*Pursuing New Frontiers in Agricultural and Environmental Research*

**Vision**  
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The generation of scientific  
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*Preparing the future scientific workforce*

Stephen H. Kolison, Jr., Ph.D.

Dean and Research Director

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***The National Science Foundation  
CREST Program  
Supports The 29th Annual University-Wide  
Research Symposium***

The Centers of Research Excellence in Science and Technology (CREST) program makes resources available to enhance the research capabilities of minority-serving institutions through the establishment of centers that effectively integrate education and research. CREST promotes the development of new knowledge, enhancements of the research productivity of individual faculty, and an expanded presence of students historically underrepresented in STEM disciplines. CREST contributes significantly to the four interrelated goals- Discovery, Learning, Research Infrastructure and Stewardship adopted by the National Science Foundation to establish an integrated strategy to deliver new knowledge at the frontiers, meet vital national needs and work to achieve the NSF vision.









29TH ANNUAL UNIVERSITY-WIDE  
RESEARCH SYMPOSIUM

MARCH 26-29, 2007

TENNESSEE STATE UNIVERSITY  
OFFICIAL 2007 SYMPOSIUM PROGRAM





OFFICE OF  
THE PRESIDENT

TENNESSEE STATE UNIVERSITY  
3500 JOHN A. MERRITT BOULEVARD  
NASHVILLE, TENNESSEE 37209-1561



March 8, 2007

Dear Colleagues:

It is my great pleasure to welcome you to the 29<sup>th</sup> Annual Research Symposium ***“Research: Celebrating Excellence.”***

This annual gathering showcases the innovative research and groundbreaking discoveries of faculty and students from a myriad of disciplines. They have spent long hours engaged in challenging work and are now proudly presenting that work for our consideration and admiration. The work featured during this symposium is a key part of the university's remarkable growth in the area of sponsored research. With millions of dollars being awarded for research initiatives at Tennessee State University, the excellence of our research is undeniable.

Tennessee State University is home to a distinguished group of researchers – faculty and students who are committed to the pursuit of knowledge for the betterment of our community, our nation and our world. It is an honor and a privilege to have the opportunity to celebrate their efforts, their inquisitiveness and their creativity.

Sincerely,

A handwritten signature in blue ink that reads "Melvin N. Johnson".

Melvin N. Johnson  
President

UR&D/MNJ/pc

*“A Commitment to Excellence”*  
AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER M/F





OFFICE OF  
THE VICE PRESIDENT

TENNESSEE STATE UNIVERSITY  
RESEARCH AND SPONSORED PROGRAMS  
3500 JOHN A. MERRITT BOULEVARD  
NASHVILLE, TENNESSEE 37209-1561



27 March 2007

Dear Colleagues:

It is an honor to welcome you to the 29<sup>th</sup> Annual University-wide Research Symposium celebrating the accomplishments of our outstanding students, distinguished researchers, dedicated staff, and accomplished faculty. Our theme for this year is "Research: Celebrating Excellence." The technical presentations, keynote addresses, and posters presented during the symposium this year demonstrate the success and contributions of the research enterprise at Tennessee State University. We are especially pleased to announce the opening of the new Research and Sponsored Programs building which will take place during the symposium. This 62,000 square foot facility will provide additional research infrastructure and resources at Tennessee State, and the community.

Research at Tennessee State continues to flourish due to the success and accomplishments of our students, faculty, staff, and researchers. We look forward to increased participation by all disciplines at the university in extramurally funded research and sponsored programs as well as celebrating additional accomplishments in the future. As we continue to align our research agenda with the needs of our external partners, we look forward to supporting interdisciplinary, collaborative efforts across high growth areas such as biotechnology, computational sciences, learning sciences, nanotechnology, and others. By leveraging our expertise and past success, focusing on the needs of our partners, and providing infrastructure improvement, we hope to continue to stimulate the growth of the research enterprise.

On behalf of the Division of Research and Sponsored Programs, I congratulate and celebrate the outstanding accomplishments of our students, researchers, faculty, and staff. At Tennessee State, we believe research is essential to excellence in education as it informs the learning process and enhances the experience of our students by providing outstanding opportunities. We remain committed to excellence in research, education and service!

As always, I remain

Sincerely,

A handwritten signature in blue ink that reads "Marcus W. Shute".

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

"A Commitment to Excellence"  
AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER M/F



## OVERVIEW OF EVENTS

### MONDAY, MARCH 26, 2007

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11:30 AM - 4:00 PM	REGISTRATION
12:00 PM - 4:00 PM	GRADUATE STUDENT PRESENTATIONS MATH, ENGINEERING AND COMPUTER SCIENCE <i>AGRICULTURAL INFORMATION TECHNOLOGY CENTER</i>

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### TUESDAY, MARCH 27, 2007

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8:00 AM - 11:00 AM	REGISTRATION <i>AGRICULTURAL INFORMATION TECHNOLOGY CENTER</i>
8:00 AM - 9:15 AM	GRADUATE STUDENT PRESENTATIONS EDUCATION, SOCIAL SCIENCES AND HUMANITIES <i>AGRICULTURAL INFORMATION TECHNOLOGY CENTER</i>
9:45 AM - 11:00 AM	UNDERGRADUATE STUDENT PRESENTATIONS ALL DISCIPLINES <i>AGRICULTURAL INFORMATION TECHNOLOGY CENTER</i>
11:30 AM - 1:30 PM	JAMES E. FARRELL- FRED E. WESTBROOK BUILDING 118 KEYNOTE ADDRESS AND LUNCHEON KEYNOTE SPEAKER: MAJOR GENERAL RONALD L. JOHNSON DEPUTY COMMANDING GENERAL AND DEPUTY CHIEF OF ENGINEERS U.S. ARMY CORPS OF ENGINEERS
2:30 PM - 3:30 PM	THE RESEARCH & SPONSORED PROGRAMS BUILDING GRAND OPENING AND RIBBON CUTTING CEREMONY FOR RESEARCH AND SPONSORED PROGRAMS BUILDING

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### WEDNESDAY, MARCH 28, 2007

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8:00 AM - 4:30 PM	REGISTRATION, <i>AGRICULTURAL INFORMATION TECHNOLOGY CENTER</i>
9:00 AM - 10:30 AM	FACULTY PRESENTATIONS, <i>AGRICULTURAL INFORMATION TECHNOLOGY CENTER</i>
11:30 AM - 1:30 PM	FARRELL -WESTBROOK BUILDING 118 LUNCHEON SPEAKER: DR. LESLIE A. WISNER-LYNCH, DIRECTOR APPLIED RESEARCH, BIOMIMETIC THERAPEUTICS, INC.
1:30PM - 4:45 PM	GRADUATE STUDENT PRESENTATIONS LIFE SCIENCES <i>AGRICULTURAL INFORMATION TECHNOLOGY CENTER</i>

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### THURSDAY, MARCH 29, 2007

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9:00 AM - 10:45 AM	FACULTY PRESENTATIONS <i>AGRICULTURAL INFORMATION TECHNOLOGY CENTER</i>
11:30 AM - 1:30 PM	FARRELL-WESTBROOK BUILDING 118 AWARDS LUNCHEON SPEAKER - DR. RICKY SHYNE, DEPUTY DIRECTOR ENGINEERING AND TECHNICAL SERVICES DIRECTORATE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION GLENN RESEARCH CENTER
1:30 PM	ADJOURNMENT

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## OPENING SESSION KEYNOTE SPEAKER MAJOR GENERAL RONALD L. JOHNSON

**Major General Ronald L. Johnson** was born and raised in Chicago, Illinois. He was commissioned as an Engineer Officer from the United States Military Academy at West Point, New York in June 1976. He holds a master's degree in Operations Research from the Georgia Institute of Technology and a master's degree in Strategic Planning from the School of Advanced Military Studies. MG Johnson's executive development and education includes course completion at Harvard University, Syracuse University, University of Virginia's Darden School, Gallup University, and the Center for Creative Leadership.

Prior to his selection as the Deputy Commanding General of the U.S. Army Corps of Engineers, he served as Director of the U.S. Army Installation Management Agency (IMA). MG Johnson served as principal advisor on installation management to the Assistant Chief of Staff for Installation Management and spokesman for all Army base operations issues. IMA manages all of the Army's installations worldwide. MG Johnson directed the management of 181 Army installations, over 75,000 military and civilian personnel, and a budget exceeding \$8 billion.



He also served as Director of Military Programs and G3 of the Corps of Engineers; Executive Officer, Secretary of the Army, Senior Aide-de-Camp, Secretary of the Army; Senior Service College Fellow, Joint Center for Political and Economic Studies, Washington, DC; Assistant Division Engineer, later Executive Officer, 65th Engineer Battalion, 25th Infantry Division (Light), Schofield Barracks, HI; Assistant Professor of Mathematics, and U.S. Military Academy, West Point.

MG Johnson's awards and decorations include the Distinguished Service Medal (with Oak Leaf Cluster), Bronze Star, Legion of Merit (with 4 Oak Leaf Clusters), Meritorious Service Medal (with 3 Oak Leaf Clusters), Army Commendation Medal (with Oak Leaf Cluster), Army Achievement Medal, Parachutist Badge, Air Assault Badge, Army Staff Identification Badge, and the Recruiter Badge. He is the recipient of the 2003 Black Engineer of the Year Award for Professional Achievement in Government Service. He is an inductee into the 2005 Academy of Distinguished Engineering Alumni at Georgia Tech.

### Keynote Address

Tuesday, March 27, 2007, 11:30 pm Farrell-Westbrook Bldg., Room 118

<b>Mistress of Ceremonies</b>	<b>Dr. Elaine Martin</b> , <i>Symposium Chair</i>
<b>Welcome</b>	<b>Dr. Melvin N. Johnson</b> , <i>President, Tennessee State University</i>
<b>Lunch is Served</b>	
<b>Introduction of Speaker</b>	<b>Dr. Marcus W. Shute, P.E.</b> , <i>Vice President, Research and Sponsored Programs</i>
<b>Keynote Speaker</b>	<b>Major General Ronald L. Johnson</b> , <i>Deputy Commanding General, U.S. Army Corps of Engineers</i>
<b>Acknowledgements and Closing Remarks</b>	





# RESEARCH AND SPONSORED PROGRAMS BUILDING R I B B O N C U T T I N G C E R E M O N Y

TUESDAY, MARCH 27, 2007 2:30 PM, RESEARCH AND SPONSORED PROGRAMS BUILDING

<b>Welcome/Acknowledgements</b>	<b>Dr. Marcus W. Shute, P.E.,</b> <i>Vice President, Research and Sponsored Programs</i>
<b>Occasion</b>	<b>Dr. Melvin N. Johnson,</b> <i>President, Tennessee State University</i>
<b>Ribbon Cutting Ceremony</b>	<b>Dr. James A. Hefner,</b> <i>President Emeritus, Tennessee State University</i> <b>Dr. Melvin N. Johnson,</b> <i>President, Tennessee State University</i> <b>Dr. Marcus W. Shute, P.E.,</b> <i>Vice President, Research and Sponsored Programs</i>

## RECEPTION/OPEN HOUSE

The first phase of the new 62,000 sq. ft. Research and Sponsored Programs (RSP) building on Tennessee State University's main campus (completed Spring 2007) will enhance research productivity and innovation by co-locating the Nanoscience and Biotechnology Laboratories and Research Program (funded by the Department of Defense), the Center of Excellence in Information Systems Engineering and Management (supported by NSF and NASA), and the Center of Excellence in Learning Sciences (primarily supported by NSF and the Department of Education). These co-located research units provide state-of-the-art instrumentation and expertise in molecular biology and biotechnology, nanosciences, computer sciences and robotics, computational sciences and mathematics, astronomy, and learning sciences.

The first phase of the RSP building is also targeted to house the Center of Excellence in Cell Biology and Cell Signaling which will be approximately 4,600 square feet of research lab and office space. The building has multiple conference rooms and two, state-of-the-art seminar rooms with a capacity of 30 persons and 60 persons, respectively, fully equipped with videoconferencing capability with multiple cameras, projectors, and microphones. A 10,000 sq. ft. animal research facility is also planned for the ground floor of the first phase which will support biomedical and related research at the University.

Finally, the administrative suite of the Division of Research and Sponsored Programs, which includes the Office of the Vice President and staff, is also located in the RSP building providing continued, accessible support to researchers, faculty and



students. A second phase of the new Research and Sponsored Programs building is planned and will provide an additional 21,000 sq. ft. of research space for new research initiatives, expand the animal research facility and the cell biology center, and house a center for computational sciences. Construction of the second phase will begin as soon as additional funds are available. The new RSP facility is a major expansion of the research infrastructure at Tennessee State University and will enhance the growth of the research enterprise by serving as an invaluable resource for Middle Tennessee and our nation.



## DEVELOPMENTS IN BIOTECHNOLOGY RESEARCH SPEAKER

### DR. LESLIE WISNER-LYNCH



**Dr. Leslie A. Wisner-Lynch** is Director of Applied Research for BioMimetic Therapeutics, Inc. in Franklin, TN, a \$300M company focused on the development and commercialization of combination device products for the repair/regeneration of orthopedic injuries including cartilage, tendon, ligament and bone. She has been with the company since it was formed in March, 2001. As Director of Applied Research she is responsible for the co-development and implementation of various pre-clinical and clinical studies and their reported results, for the company's products, with an emphasis in the orofacial product division.

A native of Midland, Michigan, Dr. Wisner-Lynch received a B.S. degree in chemistry from Lamar University, Beaumont, TX and a Doctor of Dental Surgery degree from the Medical College of Virginia-Virginia Commonwealth University in Richmond. While pursuing her dental degree she was actively involved in predoctoral research focused on bone metabolism and received numerous awards for activities related to predoctoral research as well as student leadership. After completing dental school, she pursued

surgical specialty and research training in Periodontics at the Harvard School of Dental Medicine, as the first Astra Pharmaceutical Research Fellow. In addition to receiving a surgical specialty certificate in periodontics she was concurrently awarded a Doctor of Medical Science degree from Harvard Medical School for research focused on gene expression in a naturally occurring, genetically based, bone disease model.

Upon completing surgical specialty and research training, Dr. Wisner-Lynch moved to Setauket, New York where she practiced periodontics in a multi-practitioner setting, concurrently serving as a consultant to a world-wide pharmaceutical company with products utilized in bone regeneration procedures in periodontics and craniomaxillofacial surgery. In this capacity she was responsible for developing and reviewing clinical protocols, performing initial clinical studies as well as providing publication assistance to key opinion leaders in periodontics and craniomaxillofacial surgery.

Dr. Wisner-Lynch is a member of the American Academy of Periodontology as well as the Tennessee Biotechnology Association, currently serving on the Board of Directors and education committee for the TBA. In addition to working with other industry members across the state, to enhance opportunities within the biotechnology sector in Tennessee, Dr. Wisner-Lynch is actively involved with P12 educators in Middle Tennessee, to enhance the understanding of, and opportunities for, biotechnology in the region. Dr. Wisner-Lynch also serves on the Middle Tennessee Technology Corridor Council, a regional focus group dedicated to assessing and expanding current opportunities within the technology sector in Middle Tennessee. Finally, Dr. Wisner-Lynch is one of the founding members of a recently formed not-for-profit foundation focused on advancing science and technology in Tennessee, through innovative programs developed and implemented through strategic partnerships among P12 education, higher education and business/industry.

## Biotechnology Luncheon

Wednesday, March 28, 2007, 11:30 pm Farrell-Westbrook Bldg., Room 118

### Welcome

**Dr. Maria Thompson**, Associate Vice President, Research Administration

### Lunch is Served

### Introduction of Speaker

**Dr. Todd Gary**, *Center of Excellence: Information Systems*

### Session Address

**Dr. Leslie Wisner-Lynch**, *Director, Applied Research, BioMimetic Therapeutics, Inc.*

### Acknowledgements and Closing Remarks





## AWARDS PRESENTATION LUNCHEON SPEAKER

### DR. RICKEY J. SHYNE

**Dr. Rickey J. Shyne** joined the staff of the National Aeronautics and Space Administration's Glenn Research Center, Lewis Field, Cleveland, OH, in February 1984. He was appointed to the Senior Executive Service as Deputy Director, Engineering and Technical Services Directorate in August 2005. In his current position he is responsible for co-managing the NASA Glenn engineering, facilities and infrastructure programs and staff of approximately 530 engineers, scientists, technicians and administrative personnel. Prior to his most recent appointment, Dr. Shyne was the Deputy Director of the Safety and Mission Assurance Directorate at NASA Glenn and was Nozzle Branch Chief in the Research and Technology Directorate. Additionally, he has extensive research experience performing computational and experimental modeling of compressor, turbine and exhaust nozzle components for subsonic, supersonic and hypersonic propulsion systems. Dr. Shyne has also been a member of numerous NASA and government advisory committees. He was selected in June 2000 to participate in the agency wide NASA Senior Executive Service Candidate Development Program and was certified by the Office of Personnel Management in March 2002.



A native of Dayton, Ohio, Dr. Shyne received his Bachelor of Science degree from Tennessee State University, Nashville, Tennessee and a Masters of Science degree from the University of Toledo, Toledo, Ohio both in mechanical engineering. Additionally, he received the Doctor of Philosophy degree in engineering science with a concentration in fluid/thermal sciences from the University of Toledo. He has also completed the prestigious Harvard University John F. Kennedy School of Government Senior Executive Fellows Executive Management Program in Public Policy, the Aspen Institute Executive Management Program and the Pennsylvania State University Engineer/Scientist as a Manager Executive Development Program.

Dr. Shyne holds professional memberships in the American Society of Mechanical Engineers and the National Technical Association. He serves on the Tennessee State University College of Engineering, Computer Science and Technology doctoral advisory committee in computer information systems engineering, on the TSU College of Engineering, Computer Science and Technology Industrial Advisory Committee and the Central State University Advisory Committee for a National Science Foundation grant on increasing minority participation in science and mathematics. He is a member of the Lane Metropolitan Christian Methodist Episcopal Church and is a life member of the Omega Psi Phi Fraternity, Inc. Dr. Shyne and his wife Eulanda have two sons Rickey II and Eric and they reside in Strongsville, Ohio.

## Awards Presentation Luncheon

Thursday, March 29, 2007, 11:30 pm Farrell-Westbrook Bldg., Room 118

<b>Welcome</b>	<b>Dr. Melvin N. Johnson</b> , <i>President, Tennessee State University</i>
<b>Lunch is Served</b>	
<b>Introduction of Speaker</b>	<b>Professor Yvonne Y. Clark</b> , <i>Associate Professor, Mechanical Engineering</i>
<b>Awards Luncheon Speaker</b>	<b>Dr. Rickey J. Shyne</b> , <i>Deputy Director, Engineering &amp; Technical Services Directorate National Aeronautics and Space Administration, Glenn Research Center</i>
<b>Presentation of Awards</b>	<b>Dr. Maria Thompson</b> , <i>Associate Vice President, Research Administration</i>
<b>Acknowledgements and Closing Remarks</b>	<b>Dr. Elaine Martin</b> , <i>Symposium Chair</i>



# ORAL PRESENTATIONS

## Monday, March 26, 2007

All Presentations Will Be in the Agricultural Information and Technology Center

### COMPUTER SCIENCE, ENGINEERING, MATH and PHYSICS

#### Graduate Students

Presiding: Carl Darris

12:00 PM	A1	<b>EVALUATION AND DESIGN OF REMEDIATION PROCESSES FOR AN UNLINED LANDFILL CONTAMINATED WITH TCE IN DICKSON COUNTY, TN</b> Tiffany. Hines*, Advisors: R. Painter, Valetta Watson, and T. Byl, Department of Civil and Environmental Engineering
12:15 PM	A2	<b>THE DESIGN OF A MONITORING SYSTEM THAT DEVELOPS STRENGTH IN THE QUADRICEPS MUSCLES AND REDUCES ACL INJURIES IN FEMALE ATHLETES</b> Anita Perkins*, Advisors: Mohammad Bodruzzaman, Electrical and Computer Engineering and James Bass, Human Performance Sports Sciences
12:30 PM	A3	<b>VISUAL SERVOING OF INTELLIGENT ROBOTIC SYSTEMS FOR UXO DETECTION, CHARACTERIZATION, AND REMEDIATION</b> Saed Amer*, Advisor: Amir Shirkhodaie, Department of Mechanical and Manufacturing Engineering
12:45 PM	A4	<b>SECURITY-BASED ROBUST ARCHITECTURE FOR MOBILE SENSOR NETWORKS</b> McKenzie McNeal III *, Advisor: Wei Chen, Department of Electrical and Computer Engineering, and Department of Computer Science
1:00 PM	A5	<b>ROBUST AND WORKLOAD BALANCED COMPUTATION ON NETWORKED COMPUTERS</b> Sampath Kumar Shamantula*, Advisor: Wei Chen, Department of Computer Science and Electrical Engineering
1:15 PM	A6	<b>LOCALIZATION ALGORITHMS FOR STATIONARY AND MOBILE SENSOR NODES</b> Vinayak Elangovan, Advisor: Zein-Sabatto, Mohamed, Department of Computer Sciences and Electrical Engineering
1:30 PM	A7	<b>GESTURE RECOGNITION BASED ON PARTICLE FILTER</b> Zannatul Ferdousi*, Advisor: Dr. Fenghui Yao, Department of Electrical & Computer Engineering.
1:45 PM	A8	<b>DEVELOPMENT OF AN END CLIENT FOR A LOCALIZATION AND TRACKING SYSTEM FOR USE IN A GIVEN STATIC WIRELESS NETWORK</b> Oriel Beard*, Advisor: Didar S. Sohi, Department of Electrical and Computer Engineering
2:00 PM	A9	<b>SOCIALLY INTELLIGENT TASK SELECTION MECHANISM</b> Alice C. Diggs*, Advisor: Tamara Rogers, Department of Computer Science
2:15 PM	A10	<b>DESIGN OF INTEGRATED CONTROL SYSTEM FOR ROBOTIC ARM OPERATION</b> Jinchun Feng*, Advisor: Saleh Zein_Sabatto, Department of Electrical and Computer Engineering
2:30 PM	A11	<b>LOCALIZATION AND TRACKING IN AIRCRAFT GROUND CONTROL UTILIZING RADIO FREQUENCY IDENTIFIERS (RFID'S)</b> Matthew Murray*, Advisor: Didar S. Sohi, Department of Electrical Engineering
2:45 PM	A12	<b>DEVELOPMENT OF SOFTWARE FOR VEHICLE CLASSIFICATION AND IDENTIFICATION</b> Richard Mgaya*, Advisor: Zein-Sabatto, Department of Electrical and Computer Engineering
3:00 PM	A13	<b>IMPROVED TECHNIQUES FOR FAST IMAGE REGISTRATION OF MULTIPLE VISUAL IMAGES</b> Matthew I. McCartney*, Advisor: Saleh Zein-Sabatto, Department of Electrical and Computer Engineering
3:15 PM	A14	<b>COOPERATIVE PATH AND TASK PLANNING FOR MULTIPLE UNMANNED AERIAL VEHICLES (UAVS)</b> Charles D. McCurry*, Advisor: Dr. Saleh Zein-Sabatto, Department of Electrical and Computer Engineering
3:30 PM	A15	<b>LOCALIZATION AND TRACKING OF A CLIENT PROCESS IN A GIVEN STATIC INDOOR WIRELESS NETWORK</b> Didar Sohi*, Advisor: Jeffrey Johnson, Department of Electrical Engineering
3:45 PM	A16	<b>INDOOR LOCALIZATION SYSTEM FOR TACTICAL MOBILE ROBOTS</b> Emin Kuscu*, Advisor: Amir Shirkhodaie, Department of Mechanical and Manufacturing Engineering



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<b>4:00 PM</b>	<b>A17</b>	<b>APPLICATION OF RTD MODEL TO ANALYZE THE FATE AND TRANSPORT OF AMMONIA IN A LABORATORY KARST SYSTEM</b> Kelly Ray*, Advisor: Roger Painter, Civil and Environmental Engineering
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## ORAL PRESENTATIONS

### Tuesday, March 27, 2007

*All Presentations Will Be in the Agricultural Information and Technology Center*

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## EDUCATION, SOCIAL SCIENCES and HUMANITIES

### Graduate Students

*Presiding: Karen Burke*

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<b>8:00 AM</b>	<b>B1</b>	<b>SPOKEN WORD POETRY AND THE CLASSROOM</b> Christina D. Reeves*, Advisor: Prof. Emily Orlando, Department of English
<b>8:15 AM</b>	<b>B2</b>	<b>INCORPORATING TECHNOLOGY INTO THE MUSIC CURRICULUM</b> Brook Sutton*, Advisor: Patricia Reeves, Department of Music
<b>8:30 AM</b>	<b>B3</b>	<b>MUSIC EDUCATION AND THE STUDY OF PARENTAL AND COMMUNITY ADVOCACY</b> Genae Franklin*, Advisor: Patricia Reeves, Department of Music
<b>8:45 AM</b>	<b>B4</b>	<b>DEVELOPING AND EVALUATING A NATIONAL HIGH SCHOOL CURRICULUM IN ASTROBIOLOGY</b> Leigh S. Arino de la Rubia*, J. Butler, T. Gary, S. Stockman, Advisor: Todd Gary, Center of Excellence in Information Systems and Engineering Management
<b>9:00 AM</b>	<b>B5</b>	<b>A CULTURAL AND SCIENTIFIC PARTNERSHIP BETWEEN TSU AND OGLALA LAKOTA COLLEGE (A TRIBAL COLLEGE) WITH FOCUS ON THE NEXT GENERATION OF EARTH AND SPACE SCIENTISTS</b> Arino de la Rubia*, J. Butler, T. Cummings, R. Madison, B. Byrne, T. Gary, Advisor: Todd Gary, Center of Excellence in Information Systems and Engineering Management
<b>9:15 AM</b>	<b>B6</b>	<b>EMOTIONAL INTELLIGENCE AND RELATIONSHIP ATTACHMENT AS PREDICTORS OF RELATIONSHIP SATISFACTION FOR AFRICAN AMERICANS</b> Pernella R. Deams, * Advisor: Marie Hammond, Department of Psychology
<b>9:45 AM</b>	<b>C1</b>	<b>INVESTIGATIONS OF ANTI-CANCER COMPOUNDS FROM VERNONIA AMYGDALINA (BITTER LEAF) EXTRACTS</b> Jeralyn Powell*, Cherylann Lyons, Todd Gary and E. Lewis Myles, Advisors: Todd Gary and E. Lewis Myles, Center of Excellence in Information Systems and Engineering Management, Department of Biological Sciences
<b>10:00 AM</b>	<b>C2</b>	<b>THE PRECOCIOUS ROMANTIC AND THE EPITOME OF ENGLISH ROMANTICISM: THE SIMILAR AESTHETICS OF WILLIAM WORDSWORTH AND MATSUO BASHO</b> Christopher W. Taylor*, Advisor: Nels C. Pearson, Department of Languages, Literature, and Philosophy
<b>10:15 AM</b>	<b>C3</b>	<b>ELECTRON SPIN RESONANCE (ESR) FOR DPPH</b> Earnest Anthony III *, Advisor: Professor Moin Sarkar, Department of Physics and Mathematics
<b>10:30 AM</b>	<b>C4</b>	<b>DETERMINING THE MEMBERSHIP OF STARS IN GLOBULAR CLUSTERS USING RADIAL VELOCITY</b> Sharina Haynes*, Advisors: Caty Pilachowski, Indiana University-Bloomington Department of Physics and Astronomy, Geoffrey Burks and Orville N. Bignall, Department of Physics and Mathematics
<b>10:45 AM</b>	<b>C5</b>	<b>IS GROUNDWATER MORE VULNERABLE TO THE NEW BIO-FUEL ET-85</b> Hermanie Pierre*, Keyshon Bachus, Advisor: Tom ByL, Department of Civil and Environmental Engineering
<b>11:00 AM</b>	<b>C6</b>	<b>EFFECTS OF A WETLAND ON WATER QUALITY AT TENNESSEE STATE UNIVERSITY</b> Carlton Cobb*, Jameka Johnson, Advisor: Tom ByL, Department of Civil and Environmental Engineering

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## ORAL PRESENTATIONS

**Wednesday, March 28, 2007**

*All Presentations Will Be in the Agricultural Information and Technology Center*

### Faculty

*Presiding: Dr. Jennifer Stewart-Wright*

9:00 AM	E1	<b>PRELIMINARY STRUCTURAL ANALYSIS AND DESIGN OF HIGH SPEED MEMS MAGNETIC ROTOR</b> Hurang Hu*, Department of Mechanical and Manufacturing Engineering
9:15 AM	E2	<b>USING BINARY STARS TO UNDERSTAND CHROMOSPHERES OF SINGLE STARS</b> Joel A. Eaton*, Center of Excellence in Information Systems and Engineering Management
9:30 AM	E3	<b>TO ESTABLISH A DIPLOMACY CENTER ON THE TSU CAMPUS</b> Mahgoub E Mahmoud*, Office of International Relations & Programs
9:45 AM	E4	<b>USING DIBELS TO DETERMINE READING INTERVENTION EFFECTIVENESS: ARE ESL STUDENTS PROGRESSING AS NON-ESL STUDENTS?</b> Joan Popkin*, and *A. Gunne, Department of Psychology
10:00	E5	<b>AN INVESTIGATION OF THE PHYSICS SELF-EFFICACY OF PHYSICS AND NON-PHYSICS STEM MAJORS AT THREE DISTINCT SOUTHERN COMPREHENSIVE UNIVERSITIES</b> Orville N. Bignall*, Physics and Mathematics; Christon Arthur, Education; Julie K. Rogers, Physics and Mathematics; Selene E. Bignall, DCS State of Tennessee; Chris Hansen, Ken Caviness, Physics Department, Southern Adventist University
10:15 AM	E6	<b>SUCCESSFUL INDICATORS OF ACADEMIC ACHIEVEMENT AMONG RURAL AND URBAN ADOLESCENTS IN MIDDLE TENNESSEE</b> Graham P. Matthews*, Department of Family and Consumer Sciences
10:30 AM	E7	<b>DEVELOPMENT OF AN AFRICAN AMERICAN RELATIONAL BELIEFS SCALE</b> Veronica J. Duncan*, Department of Communications

## LIFE SCIENCES, ALLIED HEALTH, AGRICULTURE BIOLOGICAL SCIENCES, and CHEMISTRY

### Graduate Students

*Presiding: Dr. Todd Gary*

1:30 PM	D1	<b>SHOULD RESISTANCE TRAINING BE USED AS AN INTERVENTION FOR THE TREATMENT OF GAIT DYSFUNCTION IN CHILDREN WITH SPASTIC CEREBRAL PALSY?</b> Amanda S Garban, Lauren E Scott, Candice S Tant, and D Collin White, Advisor: David A Lehman, Department of Physical Therapy
1:45 PM	D2	<b>THE EFFECTIVENESS OF BEHAVIORAL FOR THE TREATMENT OF PES PLANUS IN ADOLESCENTS WITH OBESITY</b> V. Deams*, Advisor: Rosalyn Pitt, Department of Physical Therapy
2:00 PM	D3	<b>EFFECTS OF ZIRAM ON THE TUMOR CELL BINDING CAPACITY ON NK CELLS</b> Thyneice Taylor*, Advisor: Margaret M. Whalen, Department of Biological Science and Department of Chemistry
2:15 PM	D4	<b>EFFECT OF DIBUTYL TIN ON ATP LEVELS IN HUMAN NATURAL KILLER CELLS</b> Fred D. Dudimah* and Constance Gibson, Advisor: Margaret M. Whalen, Department of Biological Sciences and Department of Chemistry
2:30 PM	D5	<b>NEW CATALYST SYSTEM FOR MICROWAVE ENHANCED AMINATION REACTION</b> Jesmin Akther*, Advisor: Mohammad Al-Masum, Department of Chemistry
2:45 PM	D6	<b>MOLECULAR CHARACTERIZATION OF LOCAL BACILLUS THURINGIENSIS STRAINS RECOVERED FROM MIDDLE TENNESSEE</b> Burke, Karen*, Advisors: Ejiofor, Anthony; Terrance Johnson, Department of Biological Sciences
3:00 PM	D7	<b>SCREENING FOR ANTICANCER ACTIVITY OF ETHNOMEDICINAL PLANTS FROM NIGERIA</b> Saudat Adamson*, Olugbeminiyi Fadeyi, Cosmas O. Okoro and E. Lewis Myles Advisor: E. Lewis Myles, Department of Biological Sciences

3:15 PM	D8	<b>PHENOTYPE CHARACTERIZATION OF CHROMOBACTERIUM VIOLACEUM SAMPLES ISOLATED FROM THE TENNESSEE COPPER BASIN</b> Gaston, Antoinette*, Advisors: Ejiofor, Anthony; Terrance Johnson, Department of Biological Sciences
3:30 PM	D9	<b>BREED EFFECTS ON GROWTH AND RETENTION OF MEAT GOAT KIDS THROUGH WEANING</b> Jahred D. Carlise*, B. Donnelly, T. Payton, M. Byars, and Advisor: Richard Browning, Jr., Institute of Agricultural and Environmental Engineering
3:45 PM	D10	<b>CONSTRUCTION OF A cDNA LIBRARY AND GENERATION OF EXPRESSED SEQUENCE TAGS FOR THE GUINEA FOWL ADIPOSE TISSUE</b> Gary Kelley*, S. Nahashon, J. Johnson, J. Tyus II and A. Amenyenu, Advisor: Samuel N. Nahashon, Institute of Agricultural and Environmental Research and Department of Agricultural Sciences
4:00 PM	D11	<b>DESIGN AND SYNTHESIS OF FLUORINATED COMPOUNDS: A POTENTIAL SOURCE OF VALUABLE THERAPEUTICS</b> Olugbeminiyi Fadeyi* and Cosmas O. Okoro, Advisor: Cosmas O. Okoro Department of Chemistry
4:15 PM	D12	<b>PRODUCTION PERFORMANCE OF SINGLE COMB WHITE LEGHORN CHICKENS FED DIETS CONTAINING BLOOD MEAL SUPPLEMENTED WITH ISOLEUCINE</b> James Tyus, II*, S. Nahashon, N. Adefope and D. Wright, Institute of Agricultural and Environmental Research
4:30 PM	D13	<b>CONSTRUCTION OF A cDNA LIBRARY AND GENERATION OF EXPRESSED SEQUENCE TAGS FOR THE GUINEA FOWL LIVER</b> J. Johnson*, S. Nahashon, G. Kelley, J. Tyus II and A. Amenyenu, Advisor: Dr. Samuel N. Nahashon, Institute of Agricultural and Environmental Research and Department of Agricultural Sciences
4:45 PM	D14	<b>COMPARATIVE DNA-FINGERPRINTING OF JAPANESE FLOWERING CHERRIES</b> M. Holcombe*, Advisor: Dr. Ahmad Aziz, Institute of Agricultural and Environmental Research

## **FACULTY ORAL PRESENTATIONS**

**Thursday, March 29, 2007**

*All Presentations Will Be in the Agricultural Information and Technology Center*

*Presiding: Dr. John Robinson*

9:00 AM	E8	<b>COMMUNITY READINESS ASSESSMENT: HISPANIC HEALTH IN NASHVILLE</b> Pamela Hull* and Hispanic Community Group of Tennessee, Center for Health Research
9:15 AM	E9	<b>PREDICTORS OF PATIENT RELEVANT OUTCOME AFTER TOTAL KNEE ARTHROPLASTY FOR OSTEOARTHRITIS: A RETROSPECTIVE STUDY</b> Karen Coker*, and Rick Kasse*, Department of Physical Therapy
9:30 AM	E10	<b>PHYSICAL ACTIVITY AND QUALITY OF LIFE IN INDIVIDUALS WITH SPINAL CORD INJURIES</b> Sandy Stevens*, Occupational Therapy
9:45 AM	E11	<b>ASSESSING THE GROWTH POTENTIAL AND ESTABLISHMENT OF EASTERN BLACK WALNUTS IN NORTH CENTRAL TENNESSEE</b> Joshua Idassi (Extension Forester, TSU, Nashville, Tennessee), David Brauer (Director, USDA/Agricultural Research Services, Small Farms Research Center, Booneville AR)
10:00 AM	E12	<b>MICROARRAY TRANSCRIPT PROFILING TO IDENTIFY ALUMINUM TOXICITY IN TOMATO</b> Zhou Suping, Institute of Agriculture and Environmental Research
10:15 AM	E13	<b>FACTORS IMPACTING THE WILLINGNESS OF SMALL FARMERS TO TAKE RISKS: RESULTS FROM TENNESSEE EXPERT OPINION SURVEY</b> Tegegne Ekanem*, Singh, and Muhammad Institute of Agriculture and Environmental Research.
10:30 AM	E14	<b>REGIONAL DIFFERENCES IN FOOD SAFETY KNOWLEDGE OF FAMILY FOOD PREPARERS IN TENNESSEE</b> E. Ekanem*, I. Sibanda, T. Williams, and C. Bradley Institute of Agriculture and Environmental Research.
10:45 AM	E15	<b>RACIAL OPPRESSION AND SOCIAL CONTROL: INCREASING INCARCERATION RATES OF BLACKS IN AMERICA AND SOUTH AFRICA</b> Burris-Kitchen, Deborah J, Criminal Justice



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## POSTER PRESENTATIONS

### Faculty

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*All Posters are Located in the James E. Farrell-Fred E. Westbrook Building, Room 118*

- P 1 CONSUMER HANDLING OF READY-TO-EAT VEGETABLES AND FRUITS**  
Cindy L. Thompson\* and Sandria Godwin, Institute of Agricultural and Environmental Sciences and Department of Family and Consumer Sciences
- 
- P2 EVALUATION OF USDA INSECTICIDE BAND TREATMENT PROTOCOLS FOR QUARANTINE CONTROL OF IMPORTED FIRE ANTS IN TENNESSEE.**  
Jason. Oliver\*, S. James, S. Ochieng, N. Youssef, K. Vail, M. Halcomb, T. Rashid, J. Parkman, W. Haun, and A. Callcott.
- 
- P3 A MICRO-LEVEL APPROACH TO IDENTIFYING RETENTION ISSUES: A COMPARATIVE ANALYSIS OF COLLEGE HEALTH SCIENCE DEPARTMENTS**  
Irish . Johnson\*, L. Bonner\*, S. Carey\*, W. Burrell, D. Chatterji, and R. Word
- 
- P4 THE DEVELOPMENT OF A FLAT-HEADED BORER TRAP: A SIX YEAR PROCESS**  
Nadeer N. Youssef\*, Jason B. Oliver, Donna C. Fare, Sue Scholl, Joseph Francese, Ivich Fraser, Victor Mastro, William Klingeman, and David Boyd, Institute of Agriculture and Environmental Research
- 
- P5 EFFECT OF VARYING CONCENTRATIONS OF DIETARY CRUDE PROTEIN AND METABOLIZABLE ENERGY ON LAYING PERFORMANCE OF PEARL GREY GUINEA FOWL HENS**  
Samuel Nahashon\*, N. Adefope, A. Amenyenun and D. Wright, Institute of Agricultural and Environmental Research
- 
- P6 ANTIMICROBIAL RESISTANCE IN POULTRY**  
Kilonzo-Nthenge, Agnes\*, S. Nahashon, and Fur-Chi Chen, Institute of Agricultural and Environmental Research
- 
- P7 A MULTICULTURAL AND MUSICOLOGICAL EXAMINATION OF SELECTED EXCERPTS FROM THE NEW CENTURY HYMNAL**  
Patricia Reeves\*-Johnson, Department of Music
- 

## Graduate LIFE SCIENCES

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*ALLIED HEALTH, AGRICULTURE, BIOLOGICAL SCIENCES, AND CHEMISTRY*

- P8 EFFECTS OF TRIBUTYL TIN ON THE PHOSPHORYLATION STATE OF PROTEIN TYROSINE KINASES AND PLC<sub>β</sub> IN HUMAN NATURAL KILLER CELLS**  
Sabah Ghazi\*, Advisor: Margaret Whalen, Department of Chemistry and Department of Biological Sciences
- 
- P9 EFFECTS OF ACTIVATION OF p38 AND JNK BY ANISOMYCIN ON HUMAN NATURAL KILLER CELL FUNCTION**  
Denisha Griffey\*, Advisor: Margaret M. Whalen, Department of Chemistry
- 
- P10 USING TRAINING TO IMPROVE TEACHERS' KNOWLEDGE OF BIOTECHNOLOGY**  
Emeka Eyisi\*, F. Tegegne and A. Aziz, Advisor: Fisseha Tegegne, Institute of Agricultural and Environmental Research
- 
- P11 IDENTIFICATION OF ERWINIA CAROTOVORA GENES INDUCED BY HOST SIGNAL MOLECULES USING TRANSPOSON MUTAGENESIS**  
Paul Agyemang\* and C. Korsi Dumenyo, Advisor: C. Korsi Dumenyo
- 
- P12 NON-WEIGHT BEARING EXERCISE TO REDUCE BONE LOSS IN A POST-MENOPAUSAL WOMAN WITH OSTEOPOROSIS**  
Nicole. Null\*, K. Smith\*, J. Southerns\*, Advisor: Natalie Housel, Department of Physical Therapy
- 
- P13 THE AFFECTS OF MUSIC ON LANGUAGE LEARNING**  
Trisha Ruppert\*, Advisor: Patricia Reeves, Department of Music Education
-

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## Graduate Posters

### ENGINEERING, COMPUTER SCIENCES, MATHEMATICS AND PHYSICS

*All Posters are Located in the James E. Farrell-Fred E. Westbrook Building, Room 118*

- 
- P14 SENSITIVITY OF THE OXYDASE- ENZYME INDUCED CHEMOLUMINESCENCE TO WATER QUALITY PARAMETERS**  
Farida Forouzon\*, Advisor: Tom Byl, Department of Civil and Environmental Engineering
- 
- P15 DETERMINATION OF MAIN DECHLORINATION PATHWAY FOR TRICHLOROETHYLENE IN EX SITU REACTORS USING NANOSIZE ZERO VALENCE IRON**  
Roneisha Worthy\*, Advisor: Roger Painter, Department of Civil and Environmental Engineering
- 
- P16 ABSTRACT THREE-DIMENSIONAL SIMULATION OF GROUND WATER IN A KARST CONDUIT USING THE LATTICE-BOLZMANN METHOD**  
Draghina Icobescu\*, Advisor: R. Painter, V. Watson, Department of Civil and Environmental Engineering
- 
- P17 ADVECTION VERSUS DISPERSION AS DETERMINED BY SINGLE WELL TRACER STUDIES**  
Tarra M. Beach\*, Advisors: Michael Bradley, Thomas Byl, and Roger Painter U.S. Geological Survey, Department of Civil and Environmental Engineering
- 

## Undergraduate Posters

### LIFE SCIENCES

- 
- P18 EFFECT OF PENTACHLOROPHENOL ON ATP LEVELS IN HUMAN NATURAL KILLER CELLS**  
Ugochukwu Nnodu\*, Advisor: Margaret M. Whalen, Department of Chemistry
- 
- P19 USING GLYCOSAMINOGLYCAN POLYSACCHARIDES TO GENERATE NANOPARTICLES: PALLADIUM AND SILVER**  
Dana Ivory\*, Advisor: Koen Vercruysse, Department of Chemistry
- 
- P20 KINETICS OF THE BINDING OF MULTIVALENT CATIONS TO CARTILAGE TISSUE**  
Shondra Gipson\*, Advisor: Koen Vercruysse, Department of Chemistry
- 
- P21 USING GLYCOSAMINOGLYCAN POLYSACCHARIDES TO GENERATE NANOPARTICLES: PLATINUM AND COPPER**  
Amber Williams\*, Advisor: Koen Vercruysse, Department of Chemistry
- 
- P22 USING GLYCOSAMINOGLYCAN POLYSACCHARIDES TO GENERATE NANOPARTICLES: RHODIUM, GOLD AND IRON**  
Brandolyn Johnson\*, Advisor: Koen Vercruysse, Department of Chemistry
- 
- P23 IDENTIFICATION OF ANTIBIOTIC RESISTANT GENES IN CITROBACTER AND ESCHERICHIA**  
Ashley Triplett\*, Jeffrey Gralnick, Advisor: Jeffrey Gralnick, Microbiology Immunology & Cancer Biology, Univ of Minnesota Twin Cities
- 

## Undergraduate Posters

### ENGINEERING, COMPUTER SCIENCE, MATH AND PHYSICS

- 
- P24 DESIGN AND IMPLEMENTATION OF AN ELECTRIC STIMULUS DEVICE FOR MEDICAL APPLICATIONS**  
Travis Bailey\*, Advisor: Md Hasanuzzaman, Department of Electrical and Computer Engineering
- 
- P25 THE DESIGN OF AN INTELLIGENT PEDESTRIAN CROSSWALK SYSTEM**  
Donovan McClain\*, Advisor: Md Hasanuzzaman, Department of Electrical and Computer Engineering
- 
- P26 VIABILITY OF INFILTRATION PONDS FOR ALLEVIATING STORM-WATER FLOW AND DILUTING GROUNDWATER POLLUTION**  
Derek Lovett\*, Nkechi Chieke\*, Advisor: Thomas D. Byl, Department of Civil & Environmental Engineering
- 
- P27 ENHANCED BIOREMEDIATION IN KARST AQUIFERS: CONSIDERATION OF TRACER TOXICITY AND SUPPLEMENT MIXTURE DENSITY**  
\*Kendra Smith, \*Calandra Collins, Advisors: Lonnie Sharpe, T.D. Byl, and Valetta Watson, Department of Civil & Environmental Engineering
- 
- P28 EVALUATING PECLET VALUES AND THE ROLE OF ADVECTION, DISPERSION AND DIFFUSION IN TRACER STUDIES**  
Jameka Johnson\*, Carlton Cobb, Advisors: Lonnie Sharpe, and Tom Byl
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# SCHEDULE OF EVENTS

**All Student Presentations will be In the Agricultural Information Technology Center**

Time	Monday, March 26	Tuesday, March 27	Wednesday, March 28	Thursday, March 29
8:00 AM		B1		
8:15 AM		B2		
8:30 AM		B3		
8:45 AM		B4		
9:00 AM		B5	E1	E8
9:15 AM		B6	E2	E9
9:30 AM			E3	E10
9:45 AM		C1	E4	E11
10:00 AM		C2	E5	E12
10:15 AM		C3	E6	E13
10:30 AM		C4	E7	E14
10:45 AM		C5		E15
11:00 AM		C6		
11:15 AM				
11:30 AM		<b>LUNCHEON AND KEYNOTE ADDRESS</b> <b>KEYNOTE SPEAKER</b> MAJOR GENERAL RONALD JOHNSON, U.S. ARMY CORPS OF ENGINEERS	<b>LUNCHEON ADDRESS</b> <b>SESSION SPEAKER</b> DR. LESLIE LYNCH, BIOMIMETIC THERAPEUTICS, INC.	<b>STUDENT AWARDS</b> <b>LUNCHEON</b> <b>ALUMNI SPEAKER</b> DR. RICKEY SHYNE, NASA GLENN RESEARCH CENTER
11:45 AM				
12:00 NOON	A1			
12:15 PM	A2			
12:30 PM	A3			
12:45 PM	A4			
1:00 PM	A5			
1:15 PM	A6	<b>RESEARCH AND SPONSORED PROGRAMS BLDG.</b> <b>GRAND OPENING</b> <b>RIBBON CUTTING</b> <b>CEREMONY AND RECEPTION</b>	D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14	
1:30 PM	A7			
1:45 PM	A8			
2:00 PM	A9			
2:15 PM	A10			
2:30 PM	A11			
2:45 PM	A12			
3:00 PM	A13			
3:15 PM	A14			
3:30 PM	A15			
3:45 PM	A16			
4:00 PM	A17			
4:15 PM				
4:30 PM				
4:45 PM				

**A = Math, Engineering, Computer Science Graduate Students**  
**B = Education, Social Sciences, Humanities Graduate Students**  
**C = Undergraduates (All Disciplines)**

**D = Life Science Graduate Students**  
**E = Faculty**

## CONGRATULATIONS TO THE NEWEST MILLION DOLLAR CLUB MEMBERS

*The Million Dollar Club celebrates researchers  
who have been awarded \$1,000,000 or more per grant*



**DR. WILLIAM LAWSON**



**DR. SOUMEN N. GHOSH**

**Dr. William Lawson**, Dean, Arts and Sciences, and **Dr. Soumen N. Ghosh**, Director, Office of Business & Economic Research have secured \$2.25 million to fund the Center of Academic Excellence in Intelligence Studies. The project is funded by the U.S Intelligence Community which consists of 15 different intelligence agencies and is led by the Central Intelligence Agency.

The Center is pursuing five goals designed to improve the curriculum used to prepare students for professional roles in the Intelligence Community. These goals are (1) curriculum development, (2) faculty development, (3) research germane to intelligence, (4) outreach for high school teachers and students, and (5) development of strategic partnerships with other intelligence agencies and universities that will include faculty exchanges and technical support to strengthen existing partnerships.





## MILLION DOLLAR CLUB MEMBERS

Dr. Michael Busby	<i>Center for Excellence in Information Systems Engineering and Management</i>
Dr. Satinderpaul Degvan	<i>College of Engineering, Technology, and Computer Science</i>
Dr. Soumen N. Ghosh	<i>Office of Business and Economic Research</i>
Dr. Baqar A. Husaini	<i>Center for Health Research</i>
Dr. Prem S. Kahlon	<i>Department of Biological Sciences</i>
Dr. Lee-Hyun Keel	<i>Center for Excellence in Information Systems Engineering and Management</i>
Dr. William Lawson	<i>School of Arts and Sciences</i>
Mrs. Mary Love	<i>TRIO Program</i>
Dr. Mohan Malkani	<i>College of Engineering, Technology, and Computer Science</i>
Dr. Robert F. Newkirk	<i>Department of Biological Sciences</i>
Dr. Barbara Nye	<i>Center of Excellence – Basic Sciences</i>
Dr. Chinyere Onwubiko	<i>College of Engineering, Technology, and Computer Science</i>
Dr. Edward L. Risby	<i>Graduate School and Office of Sponsored Research</i>
Dr. Decatur B. Rogers	<i>College of Engineering, Technology, and Computer Science</i>
Dr. Lonnie Sharpe	<i>Massie Chair of Excellence in Environmental Engineering</i>
Dr. Marcus W. Shute, P.E.	<i>Research and Sponsored Programs</i>
Dr. Amir Shirkhodaie	<i>College of Engineering, Technology, and Computer Science</i>
Dr. Willard Smith	<i>Center for Excellence in Information Systems Engineering and Management</i>

*Congratulations to the 18 members of the Million Dollar Club. This is an exclusive club populated by scholars who, due to their commitment to excellence, are on the cutting edge in research, teaching, and service. The steady increase in sponsored research and program support is a direct result of the million dollar projects awarded to these 18 distinguished scientists, engineers, and educators. Their efforts, although measurable in dollars, are immeasurable in terms of positive impact their work has had on the University's ability to achieve its mission.*



## STUDENT AWARDS RESEARCH SYMPOSIUM 2006

### ORAL PRESENTATIONS

1st Place - \$250  
2nd Place - \$100  
3rd Place - \$50

### POSTER PRESENTATIONS

1st Place - \$150  
2nd Place - \$75  
3rd Place - \$25

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- **Graduate Student Oral Competition - Education, Social Sciences & Humanities**

First Place – Africia Singleton  
Second Place – Rubin Cockrell

---

- **Undergraduate Student Oral Competition - Education, Social Sciences & Humanities**

First Place – Tracy Cummings  
Second Place – William Colbert  
Third Place – Christopher Norwood

---

- **Undergraduate Student Oral Competition - Life Sciences**

First Place – Fadeyi Olugbeminiyi  
Second Place – Paula Jemes

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- **Graduate Student Oral Competition - Life Sciences**

First Place – Rhonda Lane  
Second Place – Karen Burke  
Third Place – Aloice Aluoch

---

- **Graduate Student Oral Competition - Math, Engineering & Computer Science**

First Place – Lashun King  
Second Place – Bryan Green  
Third Place – Daniel Holt  
Third Place – Isaac Addae  
Third Place – Geminia Carey

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- **Undergraduate Student Oral Competition - Math, Engineering & Computer Science**

First Place – Daniel Hibbert  
Second Place – Briana Davis

---

- **Graduate Student Poster Competition - Education, Social Sciences & Humanities**

First Place – Jeralyn Powell  
Second Place – Tarra Beech  
Third Place - Emmalyne Head

---

- **Undergraduate Student Poster Competition - Education, Social Sciences & Humanities**

First Place – Esther Udoji  
Second Place – Laurin Halloway  
Third Place – Sharina Haynes

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## JUDGES

Dr. Olawale Adetona, *Tennessee State University*

Dr. Orville Bignall, *Tennessee State University*

Dr. Michael Busby, *Tennessee State University*

Dr. Carolyn Caudle, *Tennessee State University*

Mr. Elvis Cherry, *H.G. Hills Middle School*

Dr. Anthony Ejiofor, *Tennessee State University*

Dr. Vermat Exil, *Vanderbilt University*

Dr. Carla Gardner, *Tennessee State University*

Dr. Johnanna Grimes, *Tennessee State University*

Dr. Lois Harlston, *Tennessee State University*

Dr. Darryl Hood, *Meharry Medical College*

Dr. Helen Houston, *Tennessee State University*

Dr. George Hull, Jr., *Professor Emeritus, Fisk University*

Dr. Justus Ike, *Fisk University*

Dr. Michael Ivy, *Tennessee State University*

Dr. Gregory Komives, *Tennessee State University*

Dr. Leslie Lynch, *BioMimetics Therapeutic, Inc.*

Dr. Brenda McAdory, *Tennessee State University*

Dr. Oscar Miller, Jr., *Tennessee State University*

Dr. Samantha Morgan-Curtis, *Tennessee State University*

Dr. Stacie Putnam, *Tennessee State University*

Dr. John Robinson, *Tennessee State University*

Dr. Tamara Rogers, *Tennessee State University*

Dr. Guifeng Shao, *Tennessee State University*

Dr. Marsha Williams, *Tennessee State University*

Dr. Artenzia Young-Seigler, *Tennessee State University*

## 2007 RESEARCH SYMPOSIUM COMMITTEE

Mrs. Debra Alexander, *Research and Sponsored Programs*

Ms. Sara Bhatti, *Institute of Agriculture and Environmental Research*

Ms. Karen Burke, *Biological Sciences, Graduate Student*

Mrs. Phyllis Danner, *Research and Sponsored Programs*

Dr. Todd Gary, *Center of Excellence: Information Systems*

Dr. Pamela Hull, *Center for Health Research*

Dr. Mohan Malkani, *Engineering, Technology, and Computer Science*

Dr. Elaine Martin, *Biological Sciences, Chair*

Dr. Brenda McAdory, *Biological Sciences*

Dr. E. Lewis Myles, *Biological Sciences*

Mrs. Yvonne Myles, *Biological Sciences*

Mrs. Marilyn Parks, *Center of Excellence: Information Systems*

Ms. Princess Gordon-Patton, *Cooperative Extension Program*

Ms. E. Jenell Sargent, *Cooperative Extension Program*

Dr. Jennifer Stewart-Wright, *Research and Sponsored Programs*

Dr. Moinuddin M. Sarkar, *Physics and Mathematics*

Mr. Marcus W. Shute Jr., *History, Geography and Political Science, Undergraduate Student*

Dr. Maria Thompson, *Research and Sponsored Programs*

Ms. Valerie Williams, *Center of Excellence: Learning Sciences*

## EX-OFFICIO MEMBERS

Dr. Robert L. Hampton, *Provost and Executive Vice President*

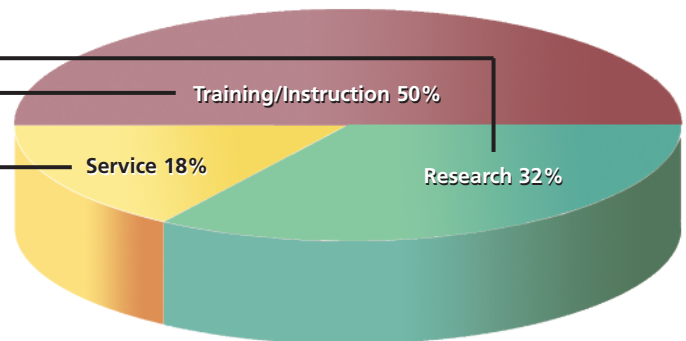
Dr. William Lawson, *Dean, College of Arts and Sciences*

Dr. Marcus W. Shute, P.E., *Vice President, Research and Sponsored Programs*

## RESEARCH AND SPONSORED PROJECT AWARDS FY 2006

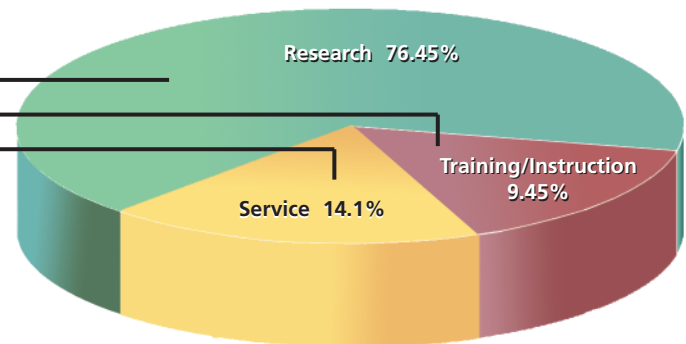
### Awards By Project Type

Research \$10,428,687 (40)  
 Training/Instruction \$16,189,207 (94)  
 Service \$5,769,737 (21)  
**TOTAL \$32,387,631 (155)**



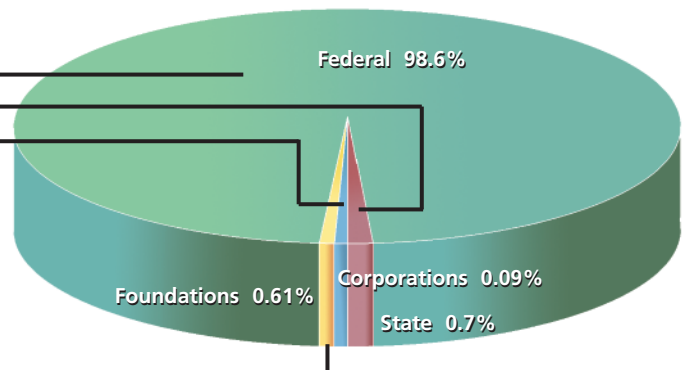
### Submissions By Project Type

Research \$48,009,705 (98)  
 Training/Instruction \$5,937,065 (30)  
 Service \$8,854,978 (22)  
**TOTAL \$62,801,748 (150)**



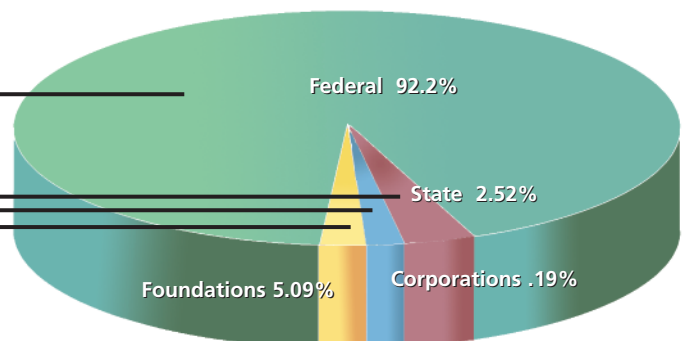
### Awards By Source

Federal \$31,926,083 (135)  
 State \$232,864 (9)  
 Corporations \$30,209 (2)  
 Foundations \$198,475 (9)  
**TOTAL \$32,387,631 (155)**



### Submissions By Source

Federal \$57,920,671 (113)  
 State \$1,562,791 (10)  
 Corporations \$120,250 (6)  
 Foundations \$3,198,036 (21)  
**TOTAL \$62,801,748 (150)**





# ACADEMIC COLLEGES, SCHOOLS AND PROGRAMS

*"Committed to  
Excellence in Teaching, Research  
and Community Service"*

- COLLEGE OF ARTS AND SCIENCES
- COLLEGE OF BUSINESS
- COLLEGE OF EDUCATION
- COLLEGE OF ENGINEERING,  
TECHNOLOGY AND COMPUTER  
SCIENCE
- SCHOOL OF AGRICULTURE AND  
CONSUMER SCIENCES
- COLLEGE OF HEALTH SCIENCES
- SCHOOL OF NURSING
- THE SCHOOL OF GRADUATE  
STUDIES
- ACADEMIC ENRICHMENT,  
ADVISEMENT  
AND ORIENTATION
- UNIVERSITY HONORS PROGRAM
- CENTER FOR EXTENDED EDUCATION
- ACADEMIC INTERVENTION CENTER

**Dr. Robert L. Hampton**  
**Provost and**  
**Executive Vice President**  
**615-963-5301**

# TENNESSEE STATE UNIVERSITY

## College of Arts & Sciences

### PROGRAMS

**Africana Studies**

**Art**

**Biological Sciences**

**Chemistry**

**Communications**

**Criminal Justice**

**History**

**Geography and Political  
Science**

**Languages, Literature,  
and Philosophy**

**Music**

**Physics and Mathematics**

**Social Work**

**Sociology**

**Interdisciplinary Studies**

**Teacher Certification**

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 Lawson, Ph.D.**  
*Dean*

**Degrees Offered**

**B.A. • B.S.**

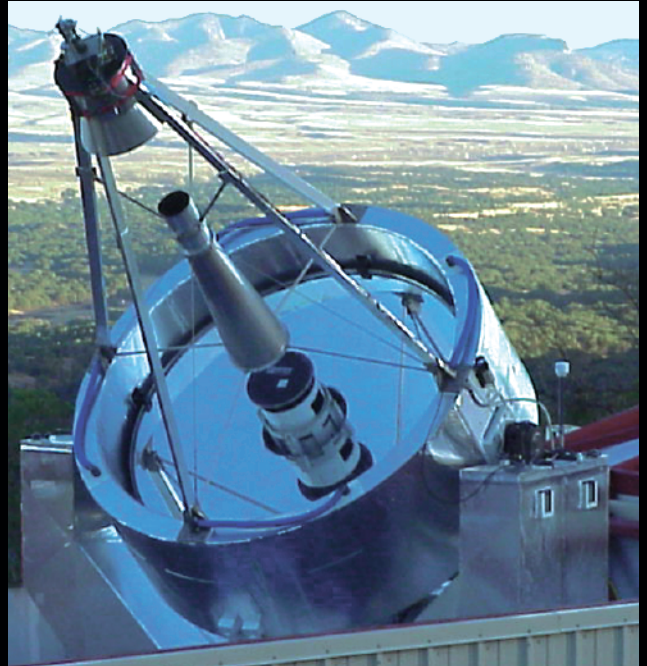
**M.A. • M.S. • M.C.J.**

**Ph.D.**





## Qualified Students Welcome



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) 277-1601  
<http://coe.tsuniv.edu>

# Cooperative Extension Program

## SALUTES

The University-Wide Research Symposium  
on the 29th Anniversary

*Educating People for Better Living*

TENNESSEE STATE UNIVERSITY

### PROGRAMS

Agriculture and Natural  
Resources

4-H and Youth  
Development

Small Farms and Integrated  
Pest Management

Forestry

Goats and Small  
Ruminants

Family and Consumer  
Sciences

Community Resource and  
Economic Development

Nutrition Education  
and Food Safety

### OUR MISSION AND VISION

The mission of the Cooperative Extension Program (CEP) is to help educate and provide information to limited-resource urban and rural families, small farmers, individuals, other groups and community organizations. We use research-based information and technology to focus on priorities and needs which help improve quality of life.

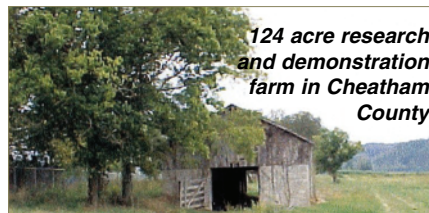


natural resources, family and consumer sciences, 4-H and youth development, and community resource and economic development.

We use a variety of program delivery strategies to contact our clientele and to provide appropriate educational programs, including county extension agents, on-farm applied research and demonstrations,

Our vision is to be a leader in outreach educational programs for continuous learning opportunities. We provide educational programs in agriculture and

the Tennessee Small Farms Expo & Small Farmers Recognition Program, *Third Tuesday* field days, and distance education programs.



124 acre research  
and demonstration  
farm in Cheatham  
County



Clyde E. Chesney, Ph.D.  
Administrator

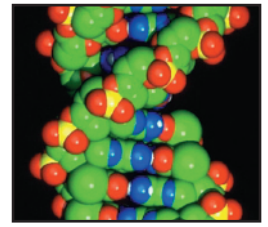
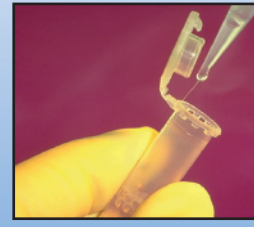
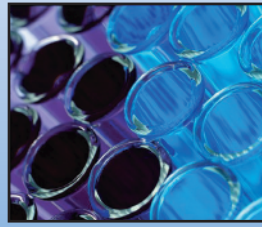
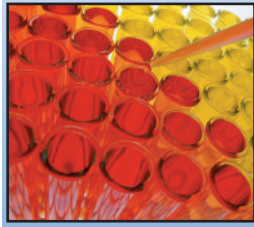
Office: (615) 963-1351 FAX: (615) 963-5394

E-mail Address: cchesney@tnstate.edu

Visit our website - <http://www.tnstate.edu/cep>



# THE DEPARTMENT OF BIOLOGICAL SCIENCES



## PREPARING SCHOLARS FOR THE PURSUIT OF RESEARCH CAREERS IN ACADEMIA, GOVERNMENT AND INDUSTRY

**The Department of Biological Sciences  
offers B.S., M.S. and Ph.D. degrees**

To inquire about Graduate or Undergraduate Programs, contact:  
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Email address: [TJohnson@tnstate.edu](mailto:TJohnson@tnstate.edu) • Telephone: (615) 963-5681

## Division of Business and Finance

*Supports the  
29th Annual  
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**Cynthia B. Brooks, Vice President**

**615.963.7411**





A Tennessee Board of Regents Center of Excellence

## **Celebrating Leadership in Learning Sciences, Research, and Service**

### **Research Initiatives**

- Science Education
- Early Intervention Models
- Teaching and Learning
- Early Childhood Educator Professional Development
- PreK-12 Teacher and Administrator Professional Development
- Student Learning Measurement
- Birth to Three Curriculum, Program and Professional Development
- Educational Funding Analysis
- Geospatial Analysis

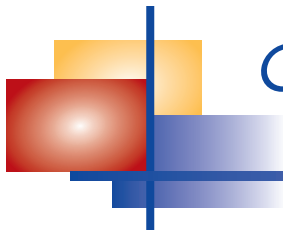
### **Programs and Projects**

- Bureau of Evaluation and Research Services (BERS)
- Historically Black College and University Partnership for Academic Training with Head Start (HBCU-PATHS)
- Social Service Competency Based Training (SSCBT)
- TSU-TN CAREs Early Head Start
- Tennessee Early Childhood Training Alliance (TECTA)
- Child Development Associate Credential Development (CDA)
- Child Care Resource and Referral (CCR&R)
- Tennessee Child Care Provider Training (TN-CCPT)
- A Center for Technology Based Decision Making in Education

## **Building Capabilities to Strengthen Communities Through Education**

**Dr. Rick Vanosdall, Interim Executive Director**  
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Phone: 615-277-1651





# Office of the Vice President for Student Affairs

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- Career Center
- Cooperative Education & E-Business Opportunities
- Wellness Center & Floyd Payne Campus Center
- Graduate & Professional Opportunities
- Health Center
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- International Student Affairs
- Minority Student Affairs
- Disabled Student Affairs
- TRIO Program
- 1st Year Students Program
- TSU Police Department

**DR. MICHAEL FREEMAN**  
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## Tennessee State University PHYSICAL THERAPY DEPARTMENT

College of Health Sciences

## Salutes The 29th Annual Research Symposium

### FACULTY

Rosalyn Pitt, PT, PE, Ed.D.

Department Chair

For information, contact the Department at 615-963-5881



## Office of University Relations and Development

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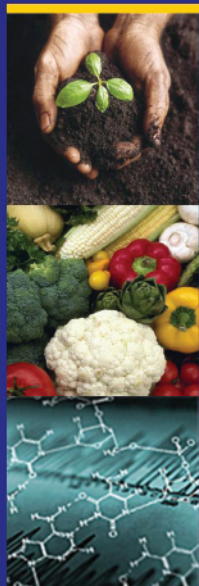
*Phone: (615) 963-5501*

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Tennessee State University  
School of Agriculture and Consumer Sciences

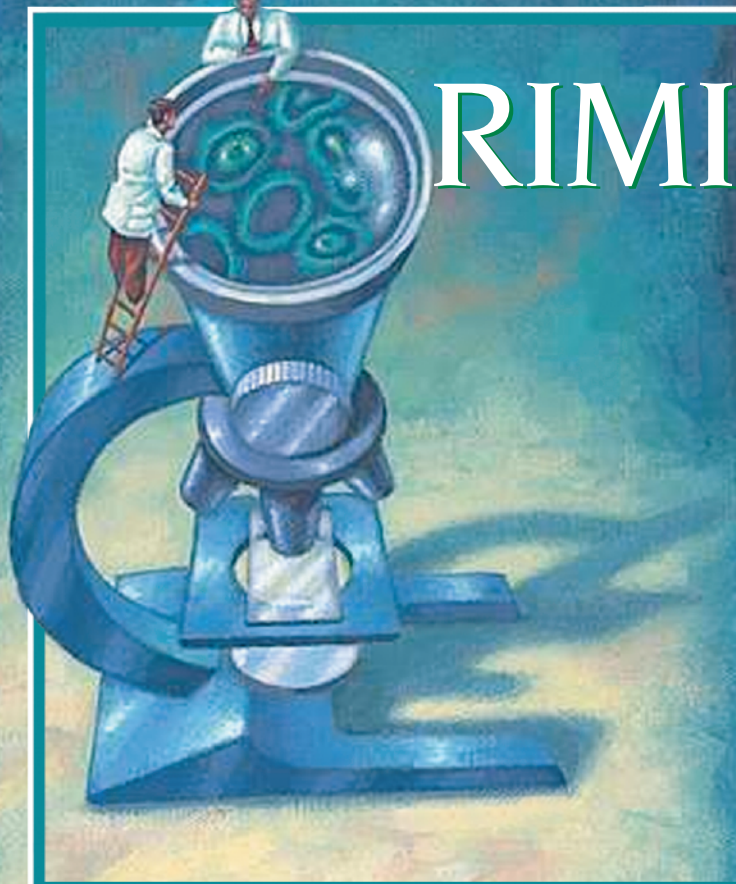


Agribusiness  
Agricultural Biotechnology  
Agricultural Education  
Animal Science/Pre-Veterinary Medicine  
Applied Geospatial Information Systems  
Child Development & Family Relations  
Design  
Early Childhood Education  
Fashion Merchandising  
Food Service Management  
Food Technology  
Foods & Nutrition  
Plant and Soil Science



*Enhancing the Quality of Life for All People*

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*Research Infrastructure for  
Minority Institutions Supports the  
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**A National Institutes of Health Program**

**Dr. Robert Newkirk**  
*Program Director and Investigator*

**Dr. Michael T. Ivy**  
*Investigator*

**Dr. Brenda McAdory**  
*Investigator*

**Dr. Xiaofei Wang**  
*Investigator*



## NOTES

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*Research at Tennessee State University utilizes the diverse skills and expertise of our researchers, faculty, staff and students to make significant and substantial contributions to the knowledge of humankind through new discoveries that have positive impact on our community, our nation, and the world in which we live. At Tennessee State University, we believe research is essential to excellence in education and enhances the educational experience of our students.*

**DR. MARCUS W. SHUTE, P.E.**  
*Vice President*



**TENNESSEE STATE UNIVERSITY**

*Division of Research and Sponsored Programs*

**3500 JOHN A. MERRITT BLVD. • NASHVILLE, TENNESSEE 37209**

**TELEPHONE 615-963-7631 • FAX 615-963-5068**

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