USDA/ARS Salutes
THE 27th ANNUAL UNIVERSITY-WIDE
Research Symposium 2005

The United States Department of Agriculture, Agricultural Research Service recognizes the research and extension endeavors pursued by Tennessee State University.

TSU's commitment to embracing the environmental initiatives of USDA is one of excellence.
27TH ANNUAL UNIVERSITY-WIDE RESEARCH SYMPOSIUM
MARCH 29-31, 2005
TENNESSEE STATE UNIVERSITY
OFFICIAL 2005 SYMPOSIUM PROGRAM
March 29, 2005

Dear Colleagues:

Welcome to the 27th Annual University-wide Research Symposium, "Celebrating Excellence in Research and Education." I am certain you join me in anticipating the scholarly activities of the next few days, featuring posters and presentations by faculty and students from across the curriculum. These faculty and students have been engaged in investigating problems and pursuing theories that have challenged them over the course of the year, and the symposium gives us the opportunity to celebrate the results of their labor.

Indeed, as we celebrate excellence in research, we are celebrating excellence in the overall educational process at Tennessee State University. Research enriches the classroom experience, giving faculty and students the opportunity to explore new horizons and blend their innovations with the expertise of the leaders in their respective fields. As president of TSU, I take great pride in that fact and in the remarkable growth in sponsored research the university has undergone in the last decade. 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 celebrates excellence and enhances our lives.

Sincerely,

James A. Hefner
President
29 March 2005

Dear Colleagues:

I am delighted to welcome you to the 27th Annual University-wide Research Symposium highlighting the accomplishments of our distinguished researchers, students, and faculty. The theme for this year is “Celebrating Excellence in Research and Education.” We pause at this time to reflect and celebrate the many contributions made by each of you to the success of the research enterprise at TSU.

Research at Tennessee State has grown tremendously over the past several years and we are uniquely postured to grow even further given sufficient resources. We have begun the process of realigning the research agenda of the University with the needs of our funding sources in the government and private sectors. In addition, we have developed interdisciplinary collaborative relationships, internally and externally, to leverage our excellent research reputation and strengths. New research activities have been launched in high-growth areas such as nanotechnology, biotechnology, homeland security, and several others that will lead to continued growth. We look forward to increased participation by all disciplines at the University in extramurally funded research as well as celebrating additional accomplishments in the future.

On behalf of the Division of Research and Sponsored Programs, I congratulate and celebrate the outstanding accomplishments of our students, researchers, and faculty. 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. We remain committed to excellence in research and education!

As always, I remain

Sincerely,

Marcus W. Shute, P.E., Ph.D.
Vice President
# Overview of Events

## Tuesday, March 29, 2005

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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>8:00 – 11:00</td>
<td>Registration</td>
<td>Forum</td>
</tr>
<tr>
<td>8:15 – 9:45</td>
<td>Key Note Speaker, Dr. Thomas Windham, National Science Foundation</td>
<td>Farrell Westbrook Bldg 118</td>
</tr>
<tr>
<td>10:00 – 11:00</td>
<td>Graduate Students Presentations, Engineering, Computer Science, Physics, Math</td>
<td>Forum</td>
</tr>
<tr>
<td>11:15 – 1:00</td>
<td>Undergraduate Students Presentations, Engineering, Computer Science, Physics, Math</td>
<td>Forum</td>
</tr>
<tr>
<td>1:45 – 4:30</td>
<td>Undergraduate Students Presentations, Education, Humanities, Social Sciences</td>
<td>Forum</td>
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## Wednesday, March 30, 2005

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<tbody>
<tr>
<td>8:00 – 11:00</td>
<td>Registration</td>
<td>Farrell Westbrook Bldg 118</td>
</tr>
<tr>
<td>8:15 – 9:30</td>
<td>Undergraduate Students Presentations, Life Sciences</td>
<td>Farrell Westbrook Bldg 118</td>
</tr>
<tr>
<td>9:45 – 11:15</td>
<td>Graduate Students Presentations, Life Sciences</td>
<td>Farrell Westbrook Bldg 118</td>
</tr>
<tr>
<td>9:45 – 11:15</td>
<td>Poster Sessions</td>
<td>Farrell Westbrook Bldg 118</td>
</tr>
<tr>
<td>11:45 – 1:45</td>
<td>USDA Speaker and Lunch, Dr. Ronald F. Korcak, United States Department of Agriculture</td>
<td>Farrell Westbrook Bldg 118</td>
</tr>
<tr>
<td>11:45 – 1:45</td>
<td>Lunch</td>
<td>Farrell Westbrook Bldg 118</td>
</tr>
<tr>
<td>2:15 – 4:00</td>
<td>Graduate Students Presentations, Education, Humanities, Social Sciences</td>
<td>Farrell Westbrook Bldg 118</td>
</tr>
<tr>
<td>2:15 – 4:00</td>
<td>Poster Sessions</td>
<td>Farrell Westbrook Bldg 118</td>
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## Thursday, March 31, 2005

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>9:00 – 11:15</td>
<td>Faculty Presentations</td>
<td>Forum</td>
</tr>
<tr>
<td>12:00 – 2:30</td>
<td>Student Awards Luncheon (by invitation only)</td>
<td>Farrell Westbrook Bldg 118</td>
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</table>

All posters should be put up by the end of the day Tuesday, March 29, 2005. Students should be at their posters 9:45 – 11:15 and 2:15 – 4:00 March 30, 2005. All posters should be removed by 3:00 PM Thursday, March 31, 2005.
Opening Session Key Note Speaker

DR. THOMAS WINDHAM

Thomas L. Windham, Ph.D. joined the National Science Foundation (NSF) in February 2004 as Senior Advisor for Science and Engineering Workforce and is the Foundation’s focal point in addressing issues, strategies, and implementations centering on broadening participation of underrepresented groups in the science and engineering workforce. Windham serves as a member of the Director’s immediate staff and participates in policy development and strategic planning.

Before coming to NSF Windham served as Director and Principal Investigator for UCAR’s Significant Opportunities in Atmospheric Research and Science (SOARS) program www.ucar.edu/soars. SOARS is a multifaceted, multi-ethnic, multi-cultural science research and learning community at the University Corporation for Atmospheric Research (UCAR) and National Center for Atmospheric Research (NCAR), Boulder, CO. In December 2001, Windham accepted the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring in Washington, D.C. on behalf of the SOARS program.

Windham was born in Harlem and is a graduate of New York City’s High School of Music and Art. He received his Ph.D. in social-personality psychology at the University of Colorado (CU) at Boulder, under Professors Stuart Cook and John Forward. Additional professional training includes postdoctoral study in Clinical and Descriptive Psychology at the Linguistic Research Institute, Boulder, under Peter Ossorio, Ph.D. Windham earned the Specialist in Education graduate degree from CU at Denver, and MS and BA degrees in psychology from New Mexico Highlands University, Las Vegas. Windham’s career track includes positions as a licensed clinical and community-organizational psychologist, educator, and CEO of a comprehensive community mental health center.

Windham has served as a Lecturer for the American Psychology Association’s Distinguished Visitor Program, President of the Boulder Valley School District Board of Education, and invited Science Education Columnist for The Boulder Daily Camera. Windham’s recent community service includes memberships on the American Meteorological Society Board on Women and Minorities, CU Alliance for Graduate Education and the Professoriate (AGEP) Advisory Committee, CU Graduate School Advisory Committee, I Have a Dream Foundation of Boulder County, CO, NSF Advisory Committee for Geosciences, NSF Alan T. Waterman Selection Committee and NSF Committee on Equal Opportunities in Science and Engineering. Windham is currently a visiting professor in the Department of Science and Technology at Universidad Metropolitana, San Juan, Puerto Rico.

In 1997 Windham was awarded Boulder County’s Ninth Annual Multi-cultural Award for Science. January 2003 Windham received The Boulder Daily Camera Pacesetter Award for Science, Medicine and Health.

Key Note Address

Tuesday, March 29, 2005, 8:30 Farrell-Westbrook Bldg., Agricultural Research and Extension Complex Auditorium

Mistress of Ceremonies  Dr. Elaine Martin, Symposium Chair

Greetings  Dr. James Hefner, President, Tennessee State University

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

Introduction of Speaker  Dr. Barbara Nye, Executive Director, Research and Policy Center on Basic Skills

Key Note Speaker  Dr. Thomas Windham, National Science Foundation
Dr. Ronald F. Korcak

Ron Korcak is a native of New York City. He began his research career as a Soil Science Trainee at the Soil Conservation Service in Utica, New York, and as a Soils Analyst in the U.S. Army Corps of Engineers at Fort Meade, Maryland, and Long Bien, Vietnam where he served from 1969-1971. He received his B.S. in Agronomy in 1968 at Cornell University. He received his Masters of Science in Soil Chemistry in 1973 and Ph.D. in Soil Chemistry and Minors in Biometrics and Inorganic Chemistry in 1977 at the University of Maryland. Dr. Korcak’s professional research began when he took a position as a Soil Scientist at the Fruit Laboratory, Plant Sciences Institute, Agricultural Research Service (ARS), U.S. Department of Agriculture in 1977, rising to the position of Research Leader in the Fruit Laboratory from 1993-1995. He also served as a Lecturer at the University of Maryland, Department of Horticulture in College Park, Maryland, from 1983-1985.

Dr. Korcak served as Associate Director of the Plant Sciences Institute from 1995-1999. Dr. Korcak was the ARS Representative on the Northeast SARE (Sustainable Agriculture, Research and Extension) Administrative Council from 1998-2001, and since 2000 he has served as the ARS Representative to the Scientific & Technical Advisory Council (STAC) for the EPA’s Chesapeake Bay Program. He is currently a Board Member of Future Harvest-Chesapeake Alliance for Sustainable Agriculture and serves on the editorial boards for the Journal of Sustainable Agriculture and the Journal of Small Fruit and Viticulture.

In 1999, Dr. Korcak was appointed to the Senior Executive Service and became the Associate Area Director for the ARS Beltsville Area in Beltsville, Maryland. The Beltsville Area encompasses the Beltsville Agricultural Research Center, which is the largest agricultural research center in the world, the U.S. National Arboretum in Washington, D.C., and worksites in Chatsworth, New Jersey, Presque Isle, Maine, and McMinnville, Tennessee.

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### Developments in Agricultural Research

WEDNESDAY, MARCH 30, 2005, NOON, Farrell-Westbrook Bldg., Agricultural Research and Extension Complex Auditorium

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<tr>
<th>Welcome</th>
<th>Dr. Marcus W. Shute, P.E., Vice President, Research and Sponsored Programs</th>
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<tr>
<td>Introduction of Speaker</td>
<td>Dr. Stephen H. Kolison, Jr., Dean and Research Director, Institute of Agricultural and Environmental Research</td>
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<tr>
<td>Session Address</td>
<td>Dr. Ron Korcak, Associate Director, Beltsville Agricultural Research Center, Agricultural Research Service, United States Department of Agriculture</td>
</tr>
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</table>
Awards Luncheon Speaker

**DR. C. FRED HIGGS, III**

C. Fred Higgs, III joined the faculty of Carnegie Mellon University in the Fall of 2003. His educational background consists of a B.S. in mechanical engineering from Tennessee State University, and M.S./Ph.D. degrees from Rensselaer Polytechnic Institute. He was a post-doctoral fellow at the Georgia Institute of Technology in the mechanical engineering department from 2001 to 2003. Currently, he is working on various projects that have to do with the flow of particles and their friction, lubrication, and wear behavior. Following his master’s thesis on electro rheological fluids, every technical publication he has written has involved particle flows as lubricants, nano-abrasives, or fluid-type macromolecules. His laboratory at Carnegie Mellon University is being built from the ground up as a state-of-the-art multi-scale engineering facility that studies particle flows in biological, mechanical, and natural systems. Since 2003, he has been invited to present two papers on nanofabrication and chemical mechanical polishing at international conferences.

In 2004, he was the principal investigator on a proposal to join the “Sloan Ph.D. Program” (www.sloanphds.org) which recognizes select professors from across the nation who will be solid mentors and magnets for underrepresented minorities seeking doctorates. He and his department colleague are the first Carnegie Mellon professors to ever be selected. In addition to being a professor, he is also the co-founder and president of goCarpeDiem, Inc. The company has MIT, NASA Glenn, Lucent Technologies, INROADS, and Kennedy Space Center as past clients on its roster. At Carnegie Mellon, his educational and research program is designed to transform the local Pittsburgh community and its youth by motivating them to excel in math and science. He is a member of the Carnegie Mellon Data Storage Systems Center (DSSC) and is its first mechanical engineering tribologist. Dr. Higgs is from Tallahassee, Florida where he is a proud graduate of Florida A&M University High School.

**Awards Presentation Luncheon**

_Sponsored by the United States Department of Agriculture_

**Thursday, March 31, 2006, Noon - 2:30 p.m. Farrell-Westbrook Bldg., Agricultural Research and Extension Complex Auditorium**

**Welcome**

Dr. James A. Hefner, President, Tennessee State University

**Introduction of Speaker**

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

**Awards Luncheon Speaker**

Dr. C. Fred Higgs, III, Assistant Professor, Mechanical Engineering, Carnegie Mellon University, Co-founder and President of goCarpeDiem, Inc.

**Presentation of Awards**

Dr. Maria Thompson, Director, Research and Sponsored Programs

**Acknowledgements and Closing Remarks**

Dr. Elaine Martin, Symposium Chair
### ORAL PRESENTATIONS

#### Graduates

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<tr>
<td>10:00 AM</td>
<td>C1</td>
<td>ANALYZING A THIN HAFNIUM DIOXIDE FILM FOR FUTURE APPLICATIONS IN SEMICONDUCTOR FABRICATION, USING Rutherford backscattering spectroscopy</td>
<td>&quot;F. Alison&quot; Advisors: Leszek Wielinski, Yves Chabal, and Theodore Madey, Department of Physics and Astronomy and Laboratory for Surface Modification, Rutgers University</td>
</tr>
<tr>
<td>10:15 AM</td>
<td>C2</td>
<td>PATH MODELING AND DETECTION OF C. ELEGANS</td>
<td>&quot;Yvette Rankin, Advisor: M. Bedruzzaman, Department of Engineering and Computer Sciences.</td>
</tr>
<tr>
<td>10:30 AM</td>
<td>C3</td>
<td>DEVELOPMENT OF A NUMERICAL MODEL FOR OXYGEN-ENHANCED FUEL BIODIGESTION IN KARST AQUIFERS</td>
<td>&quot;Lashon King, Advisor: Thomas By, Department of Civil and Environmental Engineering.</td>
</tr>
<tr>
<td>10:45 AM</td>
<td>C4</td>
<td>BACTERIA INDUCED DISSOLUTION OF LIMESTONES IN CLEAN AND CONTAMINATED KARST AQUIFERS</td>
<td>&quot;Serge Mondesir, Advisor: Thomas D. Byl, Department of Civil and Environmental Engineering.</td>
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#### Undergraduates

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<tr>
<td>11:15 AM</td>
<td>G1</td>
<td>ROBOTIC TELESCOPE OBSERVATIONS OF YOUNG PLANETARY SYSTEMS</td>
<td>&quot;Amelie Gilmann, Advisor: Gregory W. Henry, Center of Excellence in Information Systems</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>G2</td>
<td>EXAMINING THE EFFECTS OF UV LIGHT ON AN ANCIENT AND NEARLY INDESTRUCTIBLE ORGANISM</td>
<td>Sharina Haynes, Advisor: Orville Bignall, Department of Physics and Mathematics</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>G4</td>
<td>HR 1613, A SHORT-PERIOD SPECTROSCOPIC BINARY</td>
<td>&quot;Christiane Buggs, *G. Onnuch, B. Smith, Advisor: Frank Fekel, Center of Excellence in Information Systems; Advisor: Geoff Burks, Department of Physics/Center of Excellence in Information Systems</td>
</tr>
<tr>
<td>12:15 PM</td>
<td>G5</td>
<td>ANALYZING A THIN HAFNIUM DIOXIDE FILM FOR FUTURE APPLICATIONS IN SEMICONDUCTOR FABRICATION, USING Rutherford backscattering spectroscopy</td>
<td>&quot;F. Alison, Advisors: Leszek Wielinski, Yves Chabal, Theodore Madey, Department of Physics and Astronomy and Laboratory for Surface Modification, Rutgers University</td>
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#### Education, Humanities and Social Sciences

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<th>Time</th>
<th>Session</th>
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<th>Authors</th>
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<tr>
<td>1:45 PM</td>
<td>F1</td>
<td>A COMPARISON OF THE EFFECT OF PLYOMETRICS EXERCISES ON DEVELOPING STRENGTH AND FLEXIBILITY</td>
<td>&quot;D'Farmer, Advisor: Harry Beamer, Department of Human Performance &amp; Sport Science</td>
</tr>
<tr>
<td>2:00 PM</td>
<td>F2</td>
<td>DOES STRETCHING BEFORE A ROUND OF GOLF INCREASE PERFORMANCE?</td>
<td>&quot;Mark Searle, Advisor: Harry Beamer, Department of Human Performance and Sport Science.</td>
</tr>
<tr>
<td>2:15 PM</td>
<td>F3</td>
<td>POSTPARTUM DEPRESSION AMONG WOMEN WHO KILL THEIR CHILDREN: A PANEL PRESENTATION</td>
<td>Postpartum depression among women who kill their children; Ocasante Campbell; Medical disregard and cultural implications of postpartum depression; S. Carter; Postpartum depression among mothers and its influence on partners behavior to harm or kill; R. Jarrett; D. Pedagroa, Advisor: E. Kelly Sanford, Department of Sociology</td>
</tr>
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All abstracts can be found at [www.tnstate.edu/research/RSP.htm](http://www.tnstate.edu/research/RSP.htm)
THEFT IN MY HEART: A CASE STUDY OF ABUSIVE BEHAVIOR
*Donna Pendergrass, Advisor: E. Kelly Sanford, Department of Sociology

TEENAGE VIOLENCE
*Tiffany June, Advisor: Samantha Morgan-Curtis, Department of Language, Literature & Philosophy

THE COMPARISON OF TWO GOLF PRACTICE STYLES
*Pam Edwards, C. Starks, Advisor: C. Starks, Department of Human Performances and Sport Sciences.

THE AFFECTS OF PHYSICAL ACTIVITY ON OBESE CHILDREN
*Jade Madders, Advisor: Catana Starks, Human Performance And Sport Sciences

RURAL DEVELOPMENT NEEDS IN TENNESSEE: AS PERCEIVED BY TEACHING, RESEARCH, FACULTY, AND EXTENSION PERSONNEL IN AGRICULTURE AT TENNESSEE STATE UNIVERSITY
*Ashley Johnson, Advisor: Surendra P. Singh, Department of Agricultural Sciences

AGRICULTURAL TRADE AND TENNESSEE: TRENDS AND IMPLICATIONS FOR TENNESSEE AGRICULTURE AND THE ECONOMY
*Christopher. Taylor, Advisor: Surendra P. Singh, Department of Agricultural Sciences

THE SCIENCE OF TROPHOLOGY

THE AFFECTS OF PHYSICAL ACTIVITY ON OBESE CHILDREN
*Jade Madders, Advisor: Harry Beam, Department of Human Performance And Sport Sciences

Wednesday, March 30
Farrell Westbrook Agricultural Research and Extension Complex Auditorium

ORAL PRESENTATIONS

UNDERGRADUATES

LIFE SCIENCES, AGRICULTURE, BIOLOGY, CHEMISTRY (E)
Presiding: Maggie Oldham, Arman R. Belf

HETEROISIS LEVELS IN MEAT GOAT KIDS PRODUCED BY A THREE-BREED DIALLEL MATING SCHEME

EFFECT OF ENDOPHYTE-INFECTED TALL FESCUE ON GROWTH AND FEED INTAKE OF BOER AND KIKO CROSSBRED DOES
*Prashant F. Pandya, R. Browning, Jr., T. Payton, M. Byars. Advisor: Richard Browning, Jr., Institute of Agricultural and Environmental Research.

INVESTIGATIONS OF ANTI-CANCER COMPOUNDS FROM ROOT EXTRACT OF ECHINACEA

ANTITUMORGENIC PROPERTIES OF PHYTOCHEMICALS

CHARACTERIZATION OF ESTROGEN RECEPTOR SIGNALING IN A NOVEL MAMMARY TUMOR MODEL SYSTEM
*Carmela Gokol, Megan Varanace, Joellen Walsh.* Tennessee State University, Nashville, TN. 37209, ‘University of Notre Dame, Notre Dame, IN. 46556. Advisor: Dr. Benny Washington

GRADUATES

LIFE SCIENCES, AGRICULTURE, BIOLOGY, CHEMISTRY (D)
Presiding: Antionette Gaston, LeeShawn Thomas

DIBUTYLTIN EXPOSURE DECREASES GRANZYME B AND PERFORIN LEVELS IN HUMAN NATURAL KILLER CELLS

TRIBUTYLTIN-INDUCED EFFECTS ON MAP KINASES p38 AND p44/42 IN HUMAN NATURAL KILLER CELLS
*Aloice O. Aluoch and Margaret M. Whalen. Advisor: Margaret M. Whalen, Department of Chemistry.
### Oral Presentations (D)

**Presiding:** Antionette Gaston, LeeShawn Thomas

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<tr>
<td>10:15 AM</td>
<td>D3</td>
<td><strong>Effects of Tributyltin Exposure on the Ability of Human Natural Killer Cells to Lyse K562 Versus Jurkat Target Cells</strong></td>
<td>Amah R. Bell and M.M. Whalen, Advisor: M. Whalen, Department of Chemistry</td>
</tr>
<tr>
<td>10:30 AM</td>
<td>D4</td>
<td><strong>Increased Gene Expression of Muscle Cells in C. Elegans After Exposure to Hypergravity</strong></td>
<td>Carla Coleman, S. Ravindranath, S. Nur, Advisors: Todd Gary and E. Lewis Myles, Center of Excellence Information Systems, Engineering and Management, Department of Biological Sciences</td>
</tr>
<tr>
<td>10:45 AM</td>
<td>D5</td>
<td><strong>Anticarcinogenic Properties from Two Species of Echinacea</strong></td>
<td>S. Nicole Driggins, Advisors: Dr. E. Lewis Myles, Dr. Todd Gary, Biological Sciences, Center of Excellence Information Systems, Engineering and Management</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>D6</td>
<td><strong>Heterogeneity of the MEF2 Gene in Rats</strong></td>
<td>Monique McCaffiter, Charlie Mitchell, and Benny Washington, Advisor: Benny Washington, Department of Biological Sciences</td>
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### Oral Presentations (B)

**Presiding:** Rhonda Lane, Rachel Person

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<tr>
<td>2:15 PM</td>
<td>B1</td>
<td><strong>The Fury and Plurality of Sexuality and the Body in Anne Sexton's Poetry</strong></td>
<td>Dana Kennedy, Advisor: Elaine Phillips, Department of Languages, Literature and Philosophy</td>
</tr>
<tr>
<td>2:30 PM</td>
<td>B2</td>
<td><strong>Using Computer-Aided Technology and Self-Paced Learning to Increase Spanish I Scores in Middle Tennessee High School</strong></td>
<td>Gloria Green and J. Sanders, Advisor: Christion Arthur, Department of Educational Administration</td>
</tr>
<tr>
<td>2:45 PM</td>
<td>B3</td>
<td><strong>Health Literacy and Sources of Health Information in a Community Sample</strong></td>
<td>Krystal Sandifer, Advisor: Pamela Hull, Center for Health Research</td>
</tr>
<tr>
<td>3:00 PM</td>
<td>B4</td>
<td><strong>Design of an Automated Signature Recognition System</strong></td>
<td>Simeon Robich, Advisor: Bodruzaman, Mohammad, Department of Electrical and Computer Engineering</td>
</tr>
<tr>
<td>3:15 PM</td>
<td>B5</td>
<td><strong>The Characteristics of Professional Musicians</strong></td>
<td>Tony Antisim, Advisor: Robert Elliott, Department of Music</td>
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<tr>
<td>3:30 PM</td>
<td>B6</td>
<td><strong>Chronic Conditions and Co-Morbid Psychiatric Diagnoses Among Tennessee Medicare Elderly</strong></td>
<td>Cynthia D. Jackson, Michelle C. Reese, Pam Hull, Barbara Kilbourne, and Baqar Husaini, Advisor: Pamela Hull, Center for Health Research</td>
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<tr>
<td>3:45 PM</td>
<td>B7</td>
<td><strong>Factors That Influence First Year Student Academic Success and Retention - Student Priorities, Parental Educational Levels and Academic Readiness</strong></td>
<td>Regina Vincent Clark, Advisor: Christion Arthur, Department of Educational Administration</td>
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### Thursday, March 31

**Forum Floyd-Payne Campus Center**

### Oral Presentations (A)

**Presiding:** Dr. Anthony Ejiofor

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<tr>
<td>9:00 AM</td>
<td>A1</td>
<td><strong>Modeling of Cellular Behaviors in Zebrafish Embryos</strong></td>
<td>Colette Calmeleit, Lila Solntika Kreuzel, Diane Sepich, Department of Physics and Mathematics</td>
</tr>
<tr>
<td>9:15 AM</td>
<td>A2</td>
<td><strong>An Ab Initio Study of the Pathways for the Reaction Between CH302 and Br0 Radicals</strong></td>
<td>Sujaata Guha, Department of Chemistry</td>
</tr>
<tr>
<td>9:30 AM</td>
<td>A3</td>
<td><strong>The Influence of Demographics of an Introductory Circuits Course</strong></td>
<td>Carlotta Berry, Department of Electrical and Computer Engineering</td>
</tr>
<tr>
<td>9:45 AM</td>
<td>A4</td>
<td><strong>Race, Ethnicity, and Neighborhood Effects on Adolescent Well-Being</strong></td>
<td>Pamela Hull, Department of Sociology, Center for Health Research</td>
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</table>
USE OF COOPERATIVES BY SMALL FARM OPERATORS IN TENNESSEE
*Fisseha Tegegne, Enefiok Ekane, Saifdar Muhammad and Surendra Singh. Institute of Agricultural and Environmental Research and Department of Agricultural Sciences

10:15 AM A6 RHIZODEGRADATION OF PESTICIDES IN SELECTED PLANT RHIZOSPHERES
*Darwin, Kudjo. Institute of Agricultural and Environmental Research

10:30 AM A7 PRODUCERS’ BIOTECH ATTITUDES IN THREE SOUTHERN STATES: IMPLICATIONS AND PRESCRIPTIONS FOR POLICY
*Enefiok Ekane, Fisseha Tegegne, Saifdar Muhammad, and Surendra Singh. Institute of Agricultural and Environmental Research.

10:45 AM A8 GENDER DIFFERENCES IN CHURCH ATTENDANCE
*Ezell Lundy. Department of Sociology

11:00 AM A9 POINSETTIA OPEN HOUSE REVEALS CONSUMER PREFERENCES
*C. Catanzano, S. Bhatt, S. Muhammad, S. Abdullah, H. Kamake. Institute of Agricultural and Environmental Research.

POSTER PRESENTATIONS

Faculty

H1 DIURNAL ACTIVITY OF BUPRESTIDS AS INDICATED BY PURPLE STICKY TRAP COLLECTION
*Nader Youssif, Jason B. Oliver*, Donna C. Fare, and Sue Schoff. Institute of Agricultural and Environmental Research, and Horticultural Research Institute

H2 INDUCTION OF GENE TRANSCRIPTION BY COLD AND HEAT SHOCK IN PACHYANDRA TERMINALIS
*Siping Zhou, Roger Sauer, Sarabjot Bhatti, Debra Long, Tingling Chen. Institute of Agricultural and Environmental Research

H4 INHIBITION OF ADENYLYL CYCLASE OR PK A INCREASES THE EXPRESSION OF PLC GAMMA 1 AND P44/42 IN HUMAN NATURAL KILLER CELLS
*Margaret Whalen and Sabah O. Ghazi. Department of Chemistry

H5 EVALUATION OF THE DESIGN AND SITE PLACEMENT OF VARIOUS TRAPS FOR THE COLLECTION OF EMERALD ASH BORER
*J. Oliver, J. Francese, N. Youssif, V. Mastro, D. Lance, I. Fraser, and D. Fare. Institute of Agricultural and Environmental Research

H6 A COMPARISON OF CLINICAL TREATMENT OUTCOMES ACROSS SEMESTERS
*Mary E. Fitzgerald and E. L. Kindle. Department of Speech Pathology and Audiology

H7 ADEQUACY OF DIETS OF FOOD STAMP RECIPIENTS AS COMPARED TO NON-FOOD STAMP RECIPIENTS IN MIDDLE TENNESSEE
*Leslie Speller-Henderson, Sandria Godwin, Fisseha Tegegne, and Cindy Thompson. Institute of Agricultural and Environmental Research

H8 CONTROL OF MICROBIOL CONTAMINATION ON THE SURFACE OF FRESH FRUITS AND VEGETABLES: HOME WASHING METHODS
*Agnes Kilongo-Nithenjge, F. Chen, S. Godwin, C. Ayiemang, and P. Oyar. Institute of Agricultural and Environmental Research and Department of Family and Consumer Sciences

H9 CARCASS TRAITS OF FRENCH GUINEA KEET BROILERS FED DIETS WITH VARYING LEVELS OF METABOLIZABLE ENERGY
*Samuel Nahashon*, N. Adeole, A. Amenuyen, and D. Wright. Institute of Agricultural and Environmental Research

H10 POTENTIAL PROTEIN MARKERS FOR ASSESSING THE EFFECTIVENESS OF INACTIVATION OF BSE AGENT IN MEAT PRODUCTS
*Fur-Chi Chen, A. Kilongo-Nithenjge, D. Young, and A. Abdullah. Institute of Agricultural and Environmental Research

H11 NEW METHOD TO DETERMINE STABLE ISOTOPIC ENRICHMENT AND CONCENTRATION OF GLYCEROL AND GLUCOSE IN PLASMA VIA GAS CHROMATOGRAPHY-MASS SPECTROMETRY
*Mu Zheng. Department of Chemistry

H12 A NOVEL TRAFFICKING PATHWAY FOR THE HIGH AFFINITY CHOLINE TRANSPORTER. *Michael T. Ivy* and James G. Townsend. Department of Biological Sciences, Tennessee State University, Nashville, TN 37209, and Department of Physiology, Meharry Medical College, Nashville, TN 37208.

H13 DEVELOPMENT OF F-AFLP TECHNIQUES FOR GOLDENSEAL (HYDRASTIS CANADENSIS)
*Roger Sauer, and Suping Zhou. Institute of Agricultural and Environmental Research.

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H14 LOW TEMPERATURE REGULATION OF GENE TRANSCRIPTION IN PACHYSANDRA TERMINALIS
*Roger Sauer* and Suping Zhou, Institute of Agricultural and Environmental Research

H15 OPTIMIZATION OF HEAT TREATMENTS FOR HEAT STRESS STUDIES IN VINCA (*Calhanthus hybridra*)
*Roger Sauer* and Suping Zhou, Institute of Agricultural and Environmental Research

H16 AGRICULTURAL BIOTECHNOLOGY ISSUES: FOCUS GROUP RESULTS FROM THREE STATES
*Endrök Ekanem, Fisseha Tegegne, Safidar Muhammad, and Surendra Singh*, Institute of Agricultural and Environmental Research

H17 COLLEGE STUDENTS PERCEPTION OF TEACHING EFFECTIVENESS IN INSTRUCTORS WITH ACCENTS
*Iris Johnson, H. Blakemore*, A. *Willis*, and M. *Hughes*, Health Sciences

POSTER PRESENTATIONS

Graduate Students

H18 TRIBUTYL Tin-INDUCED EFFECTS ON MAP KINASES p38 AND p44/42 IN HUMAN NATURAL KILLER CELLS
*Alorie Alouch*, Advisor: Margaret Whalen, Department of Chemistry

H19 DESIGN OF AN INTELLIGENT CONTROL SYSTEM FOR AN UNMANNED AERIAL VEHICLE (UAV)
*Charles D. McCurry*, Advisor: Saleh Zein-Sabatto, Electrical and Computer Engineering

H20 IN VITRO REGENERATION OF LYCOPERSICON ESCULENTUM FOR GENETIC TRANSFORMATION STUDIES
*Tingting Chen, Suping Zhou and Roger Sauer*, Advisor: Suping Zhou, Institute of Agricultural and Environmental Research

H21 COMPARISON OF SAMPLE DARK-GREEN VEGETABLE VARIETIES VIA GERMINATION RESPONSE AND GENOTYPING
*Kori Shaw, D. Long, A. Aziz, and R. Sauer*, Advisor: Dr. Ahmad Aziz, Institute of Agricultural and Environmental Research

H22 APPLICATIONS OF AFLP IN PLANT GENOTYPING
*Russell Harrison, A. Aziz and R. Sauer*, Advisor: A. Aziz, Institute of Agricultural and Environmental Research

H23 DEVELOPMENT OF A COMPUTER PROGRAM THAT USES RTD AND BIODEGRADATION RATES TO PREDICT TOLUENE REMOVAL IN KARST AQUIFERS
*Ryan Fitzwater*, Advisor: Thomas D. Byl, Department of Civil and Environmental Engineering

H24 COMPARISON OF BIOLUMINESCENT BACTERIA AND OXYGEN UPTAKE RESPONSE AS INDICATOR OF WATER QUALITY

H25 FIELD APPLICATION OF RTD/BIODEGRADATION MODEL TO A CONTAMINATED KARST SITE
*Revelle Isabella Ford, Roger Painter*, and Tom Byl, Advisors: Thomas D. Byl and Roger Painter Department of Civil and Environmental Engineering

POSTER PRESENTATIONS

Undergraduate Students

H26 THE EFFECTS OF NOISE EXPOSURE ON COLLEGE BAND MUSICIANS: PURE TONE AND OTOACOUSTIC EMISSIONS SCREENINGS
*Jamie Fisher*, Advisor: Valerie Matlock, Department of Speech Pathology and Audiology

H27 EXPLORING THE RELATIONSHIP BETWEEN LEARNING STRATEGIES AND GRADE POINT AVERAGE
*Linda Burks, W. Jordanov*, Advisor: Wendy Jordanov, Department of Psychology

H28 BRIEF EXPOSURE TO PENTACHLOROPHENOL CAUSES PROGRESSIVE LOSS OF CYTOTOXIC FUNCTION IN HUMAN NATURAL KILLER CELLS
*Teliphore Tucker*, Advisor: M. Whalen, Department of Chemistry

H29 EFFECTS OF IN VITRO EXPOSURES TO LOW LEVELS OF ORGANO Tin PESTICIDES ON HUMAN NATURAL KILLER CELL CYTOTOXIC FUNCTION
*Marilyn Pruitt, L. Dixon, A. Reed*, and M. Whalen, Advisor: Margaret Whalen, Department of Chemistry

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<td>THE COMBINED EFFECTS OF LOW AND HIGH DOSES OF COPPER AND NICKEL IONS ON U937 CELLS</td>
<td>Shalands Harris and W. Y. Boadi, Advisor: William Y. Boadi, Department of Chemistry</td>
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<td>Kiana Brooks, Advisor: Christopher Brown, Vanderbilt University Medical Center Department of Pediatric Cardiology</td>
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<td>REGULATION OF GLUTATHIONE LEVELS IN U937 CELLS BY HIGH DOSES OF QUERCETIN</td>
<td>Rhodes Alkmini, and W. Y. Boadi, Advisor: William Y. Boadi, Department of Chemistry</td>
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<td>AFLP FRAGMENT ANALYSIS ON SEQUENCING GEL USING SAGA GENERATION 2 SOFTWARE</td>
<td>Mirica Stevens, R. Harrison, C. Robinson and T. Cary, Advisor: A. N. Aziz, Institute of Agricultural and Environmental Research</td>
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<td>Sheron Shelton, Advisor: Christy Scott, Department of Psychology</td>
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<td>Jeanita S. Pritchett and Koen P. Vercruysse, Advisor: Koen P. Vercruysse, Department of Chemistry</td>
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<td>Jessica Lawrence and W. Y. Boadi, Advisor: William Y. Boadi, Department of Chemistry</td>
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<td>Sherina Haynes, Tanisha Taylor, and Rhonda Lane, Advisors: Dr. Todd Cary, Dr. E. Lewis Myles, Department of Biological Sciences</td>
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<td>Marissa Love and R. Browning, Jr., Advisor: Richard Browning, Jr., Institute of Agricultural and Environmental Research</td>
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<td>Frank Akton, Advisor: Leszek Wielunski, Yves Chabal, and Ted Maday, Department of Physics and Astronomy, Rutgers University</td>
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<td>James Davis, Tiffany Hines, John Brew and T. D. Byl, Advisor: Thomas D. Byl, Department of Civil and Environmental Engineering</td>
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<td>CONSUMER AWARENESS OF THE EFFECTS OF SMOKING ON VOCAL QUALITY</td>
<td>Sabrina Smiley, Advisor: Valeria Roberts Matlock, Department of Speech Pathology and Audiology</td>
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<td>AN EXAMINATION OF THE AWARENESS OF THE PROFESSIONS OF SPEECH LANGUAGE PATHOLOGY AND AUDIOLGY AMONG UNDECIDED MAJOR STUDENTS AT TENNESSEE STATE UNIVERSITY</td>
<td>Jennifer Washington and Tanya Gates, Advisor: Valeria Matlock, Department of Speech Pathology and Audiology</td>
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**C = GRAD: COMP SCI, ENGR, PHYSICS, MATH**

**D = GRAD: LIFE SCI**

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# 2004 Presentation Winners

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Congratulations to the Newest Million Dollar Research Club Member

Dr. Amir Shirkhodaie, Associate Professor, Mechanical Engineering, will lead Tennessee State University's Center of Excellence for Battlefield Sensor Fusion to study methods to improve the soldier’s capability on the battlefield through the use of sensors, robotics and other technologies. TSU, through Dr. Shirkhodaie, has been awarded a $2.5M (budgeted), multi-year research award from the Department of the Army for battlefield enhancements.

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

MILLION DOLLAR CLUB MEMBERS

<table>
<thead>
<tr>
<th>Name</th>
<th>Department/Program</th>
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<tbody>
<tr>
<td>Dr. Michael Busby</td>
<td>Center for Excellence in Information Systems Engineering and Management</td>
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<tr>
<td>Dr. Satinderpal Degvan</td>
<td>College of Engineering, Technology, and Computer Sciences</td>
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<td>Dr. Baqer A. Husaini</td>
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<td>Dr. Prem S. Kanion</td>
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<td>Dr. Lee-Hyun Keel</td>
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<td>Mrs. Mary Love</td>
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<tr>
<td>Dr. Mohan Malkani</td>
<td>College of Engineering, Technology, and Computer Sciences</td>
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<td>Dr. Robert F. Newkirk</td>
<td>Department of Biological Sciences</td>
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<td>Dr. Barbara Nye</td>
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<td>Dr. Chinyere Onwubiko</td>
<td>College of Engineering, Technology, and Computer Sciences</td>
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<tr>
<td>Dr. Edward L. Risby</td>
<td>Graduate School and Office of Sponsored Research</td>
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<td>Dr. Decatur B. Rogers</td>
<td>College of Engineering, Technology, and Computer Sciences</td>
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<tr>
<td>Dr. Lonnie Sharpe</td>
<td>Massie Chair of Excellence in Environmental Engineering</td>
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<tr>
<td>Dr. Amir Shirkhodaie</td>
<td>College of Engineering, Technology, and Computer Sciences</td>
</tr>
<tr>
<td>Dr. Willard Smith</td>
<td>Center for Excellence in Information Systems Engineering and Management</td>
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Congratulations to the fifteen members of the Million Dollar Research 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 15 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.
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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
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