

Tennessee Academy of Science

TAS

**Program
of the
117th Meeting**

**Volunteer State Community College
Gallatin, Tennessee
November 15-16, 2007**

Institutional Sustaining Members of the Tennessee Academy of Science

Austin Peay State University

Middle Tennessee State University

Motlow State Community College

Rhodes College

Tennessee Technological University

The University of Tennessee, Knoxville

The University of Tennessee at Martin

The University of Tennessee Space Institute

Volunteer State Community College

Affiliated Societies of the Tennessee Academy of Science

American Association for the Advancement of Science

Barnard Astronomical Society

Clarence T. Jones Memorial Observatory

National Association of Academies of Science

Tennessee Association of Science Department Chairs

Tennessee Entomological Society

Tennessee Psychological Association

Tennessee Junior Science and Humanities Symposium

Tennessee Science Teachers Association

TAS Home Page Information

For information about TAS, including information for the annual and collegiate division meetings, the Tennessee Visiting Scientist Program, the membership list, and more, visit the TAS website at:

<http://www.mtsu.edu/~tnacadsc/>

TAS Future Meeting Sites

2008 with Tennessee Science Teachers Association, Nashville

TABLE OF CONTENTS

TAS Institutional Sustaining Members	Inside front cover
TAS Affiliated Societies	Inside front cover
Table of Contents and Announcements	p. 1
Meeting Schedule and Social Events	p. 2
General Assembly: Symposium, Plenary Address, and Business Meeting	p. 3
Technical Sessions	
Botany	p. 4
Cell and Molecular Biology, Health & Medical Sciences And Microbiology	p. 5
Chemistry	p. 6
Engineering & Engineering Technology	p. 7
Geology and Geography	p. 8
History of Science	p. 9
Mathematics and Computer Science	p. 10
Physics and Astronomy	p. 11
Science and Math Teaching	p. 12
Zoology I	p. 13-14
Poster Session (Rochelle Center)	p. 15-20
Standing Committees	p. 21
Executive Committee	p. 22
Local Arrangement Committee	p. 22
Information for Driving, Parking, and Accommodations	p. 23

ANNOUNCEMENTS

Registration: Meeting attendees may register by mail (see previous mailing) or onsite in the Pickel Field House on November 16, 7:30 AM–1:00 PM

Luncheon Tickets. Extra tickets may be available for \$10 at the Registration Desk.

Membership: Application forms for membership in the Tennessee Academy of Science will be available at the Registration Desk. A completed application accompanied by first year dues may be left for the TAS Treasurer at the Registration Desk or mailed to: Dr. Steven Murphree, Department of Biology, Belmont University, 1900 Belmont Blvd., Nashville, TN 37212-3758. Current annual dues by category are: Regular \$30; Sustaining, \$35; Supporting, \$40; Life, single payment \$300; Student or Emeritus, \$10. Membership includes a subscription to the TAS Journal.

MEETING SCHEDULE

Thursday, November 15

5:30 - 10:00.

Executive Committee Meeting and Dinner
Wood Campus Center, Carpeted Dining Room 6:30

Friday, November 16

7:30 -

Registration and Continental Breakfast
Pickel Field House

8:30 - 12:00

2007 TAS General Assembly and Business Meeting
Pickel Field House

8:45 - 9:45

**TAS Symposium: Dr. Linda Slakey,
National Science Foundation**
Pickel Field House

9:00 - 1:00

Poster Session (attended 11:00-12:00)
Rochelle Center

9:00 - 10:30

Science Chairs Meeting
Moore Conference Room, Thigpen Library, 2nd Floor

9:45 - 10:00

Break

10:00 - 11:00

**TAS Plenary Session: Mr. Kent Syler
U.S. House of Representatives**
Pickel Field House

11:00 - noon

TAS Business Meeting
Pickel Field House

Noon - 1:00

Luncheon
Pickel Field House

1:10 - closing

Section Business and Technical Sessions
Warf and Wallace Buildings

2007 TAS GENERAL ASSEMBLY

8:30-12:00

Pickel Field House

WELCOME

Dr. Cindi Smith-Walters, 2007 TAS President-Elect

Dr. Warren Nichols, President, Volunteer State Community College

2007 TAS SYMPOSIUM

8:45-9:45

Dr. Linda Slakey

Director, Division of Undergraduate Education

National Science Foundation

Directions in Undergraduate STEM Education

2007 TAS PLENARY ADDRESS

10:00-11:00

Mr. Kent Syler

Chief of Staff for U.S. Representative Bart Gordon

Rising Above the Gathering Storm

BUSINESS MEETING

11:00-noon

Dr. George E. Webb, 2007 TAS President, Presiding

BOTANY
Warf 110
Rex Barber, Presiding
Baylor University

- 1:10 **Section Business Meeting: Election of Officers for 2008**
- 1:15 **A Report On The All Taxa Biodiversity Inventory At Montgomery Bell State Park .**
L. Welch, Tennessee State Parks.
- 1:30 **An Update On The Family Styracaceae In Kentucky And Tennessee.** E. Chester, Austin Peay State University.
- 1:45 **Conservation Genetics Of An Endangered Sunflower.** J. Ellis*, Vanderbilt University.
- 2:00 **A Flora Of The North Chickamauga Creek Gorge State Natural Area.** S. Huskins* and J. Shaw, University of Tennessee at Chattanooga.
- 2:15 **Natural Chestnut-Chinquapin Hybrids Are Confounding Taxonomy: A DNA Sequence-based Inquiry Into Putative Hybrid *Castanea* Populations In The Southeastern United States.** M. Binkley*, H. Craddock, F. Dane, and J. Shaw, University of Tennessee at Chattanooga and Auburn University.
- 2:30 **The Botany Section Of The Tennessee Academy Of Science, 1934-2007.** T. Hemmerly, J. Butler, and J. Corgan, Middle Tennessee State University and Austin Peay State University.
- 2:45 **Break**
- 3:00 **Analyzing The Spread Of Invasive Plants Using Geographic Information Systems And Herbarium Specimens.** R. Miller*, J. Shaw, and A Carroll, University of Tennessee at Chattanooga.
- 3:45 **Ecology Of Surviving American Chestnut (*Castanea dentata*) Trees On The Western Edge Of Their Former Range In Mississippi, Kentucky, and Tennessee.** J. Schibig, Volunteer State Community College.
- 4:00 **The American Chestnut Backcross Breeding Program In Tennessee.** C. Cropper, Volunteer State Community College.
- 4:15 **A Retrospective Of Volunteer State Community College's Participation In The All Taxa Biodiversity Inventory At Edgar Evins State Park.** R. Barber, Baylor University at Waco, Texas.

* student author

presenting author, if not first author

**CELL and MOLECULAR BIOLOGY (C&M)
HEALTH AND MEDICAL SCIENCES (H&M) and MICROBIOLOGY (Micro)
Warf 116**

**Nick Ragsdale, Belmont University (C&M), presiding
Chad Brooks, Austin Peay State University (H&M, Micro), presiding**

- 1:10 **Section Business Meeting: Election of Officers for 2008**
- 1:15 **Apolactoferrin Inhibits A Low Molecular Weight Isoform of MMP-2 By A Zinc Chelation Mechanism.** A. L. Newsome, J. P. Johnson, R. L. Seipelt, and M. W. Thompson#, Middle Tennessee State University. (C&M)
- 1:30 **Developing And Evaluating Molecular Methods For Detecting The Amphibian-Cidal Fungus, Batrachochytrium Dendrobatidis.** D. Henley*, B. Rothermel, and C. Brooks, Austin Peay State University. (C&M)
- 1:45 **Using Micromirrors To Obtain Three-Dimensional Images Of Cells.** C. Wright*, K. Seale, R. Reiserer, E. Boczko, C. Stowers and J. Wikswo, Vanderbilt University. (C&M)
- 2:00 **Pinocytic Loading Of Primary T cells.** M. Marschner, Vanderbilt University(C&M)
- 2:15 **Toxicology Studies Using Microfluidic Devices and T Cells.** P. Sivasubramaniam*, Vanderbilt University. (C&M)
- 2:30 **Blood Sorting In Microfluidic Devices.** E. Chung, Vanderbilt University. (C&M)
- 2:45 **Break**
- 3:00 **Comparative Analysis Of DNA-based Assays And ELISA Antigen/Antibody For Detecting *Dirofilaria immitis* – Heartworm disease.** J. Marin* and C. Brooks, Austin Peay State University (Micro)
- 3:15 **Endemicity Of *Borrelia burgdorferi* Infected Ticks From Montgomery County.** C. Russell* and C. Brooks, Austin Peay State University (Micro)
- 3:30 **A Look At Some State-Based Obesity Prevention And Management Programs In Children And Adolescents. What Lessons Can Tennesseans Learn?** E. Jator, Austin Peay State University. (H&M)
- 3:45 **Evaluation Of Melittin As A Novel Drug Therapy For Lyme Disease.** J. Vazquez* and C. Brooks, Austin Peay State University. (H&M)
- 4:00 **How Safe Is The Food In Your Refrigerator?** S. Godwin, FurChi Chen, and R. Coppings#, Tennessee State University. (H&M)

* student author

presenting author, if not first author

CHEMISTRY
Wallace 109
Martin V. Stewart, presiding
Middle Tennessee State University

- 1:10 **Section Business Meeting: Election of Officers for 2008**
- 1:15 **A Computational Look At The Structures Of Several Organosilylmagnesium Halide Adducts.** W. H. Ilsley, Middle Tennessee State University.
- 1:30 **New Thiosemicarbazones For Environmental, Medicinal, And Analytical Research.** E. C. Lisic, Tennessee Technological University.
- 1:45 **C2 Substituted Imidazolium Salts: The Alkylation Approach.** E. G. Ennis* and S. T. Handy, Middle Tennessee State University.
- 2:00 **Oxygen In Graphite Oxide Structures.** J. Scales*, S. N. Sambandam, T. Cecil, and W. Lu, Fisk University.
- 2:15 **Break**
- 2:30 **Potential Use Of LC/MS/MS or GC/MSⁿ In Immediate Warrant Issuance Of A Suspected Clandestine Methamphetamine Laboratory.** J. O. Boles, Tennessee Technological University.
- 2:45 **Characterization Of Anhydrous Oligonucleotides On The Basis Of Structure By Ion Mobility-Mass Spectrometry.** A. Mahsut*, S. Zhao*, J. A. McLean, Vanderbilt University.
- 3:00 **Development Of Surface-Enhanced Raman Scattering Methods For The Analysis Of Active Pharmaceutical Ingredients.** S. Ramamoorthy*, B. G. Ooi, and N.-S. Chong, Middle Tennessee State University.
- 3:15 **History Of The TAS Chemistry Section: 1940-2007.** J. X. Corgan and M. V. Stewart#, Austin Peay State University and Middle Tennessee State University.
- 3:30 **Nanofabrication Through Intensified Plasma Assisted Processing.** E. de Silva# and M. Gibbs*#, Lincoln Memorial University.
- 3:45 **Closing Remarks Including a Progress Report for the 2008 Southeastern Regional Meeting of the American Chemical Society (SERMACS 2008) To Be Hosted by the Nashville ACS Section.**

* student author

presenting author, if not first author

ENGINEERING and ENGINEERING TECHNOLOGY
Wallace 111A
Adel Salama, Presiding
Austin Peay State University

- 1:10 **Section Business Meeting: Election of Officers for 2008**
- 1:15 **Evaluation of Phase Change Materials For Energy Conservation.** David W. Yarbrough, R&D Services, Inc., Cookeville, TN.
- 1:30 **A History Of The Engineering Section Of The Tennessee Academy Of Science, 1955-2006.** James X. Corgan, Austin Peay State University (retired), David W. Yarbrough#, Tennessee Technological University (retired).
- 1:45 **Smooth Muscle Cells Signaling Model Of Dynamic Cerebrovascular Regulation.** N. Narayanan* and M. L. Daley, University of Memphis.
- 2:00 **Mathematical Analysis Of Sunspot Activity.** L. Rightmire* and M. L. Daley, University of Memphis.
- 2:15 **A Finite Element Analysis Study Of The Influence Of The Elastic Modulus Of The Nucleus Pulposus On The Biomechanical Performance Of A Model Of A Cervical Spine Motion Segment.** Y. Li* and G. Lewis, University of Memphis.
- 2:30 **Maintaining Long-Term Cell Viability In A Perfused Tissue Bioreactor System.** Jenny Lu*#, Dmitry Markov, and Lisa McCawley, Vanderbilt University.
- 2:45 **Modifying Tracking In The Magnetic Tweezers System.** E.Sinkala*, J. Mecklenborg, F. Baudenbacher, and J.Wiksw, Vanderbilt University.
- 3:00 **Break**
- 3:15 **Galvanotactic Cell Control In A Microfluidic Device.** D. Henson*, A. Skandarajah*, E. DeLong*, and John Wiksw, Vanderbilt University.
- 3:30 **Cytokinetic Toximetry In A Microfluidic Device.** E.G.R. Kim*, J.P. Wiksw, and K.T. Seale, Vanderbilt University.
- 3:45 **An Easy Way To Approximate A Hexagonal Polyhedron From A Cube.** Chin-Zue Chen, Austin Peay State University.
- 4:00 **The Development of Intelligent Systems using Soft Computing Algorithms.** Ashraf Saad, and Adel Salama#, Armstrong Atlantic State University, Savannah, Georgia and Austin Peay State University.
- 4:15 **Extensive Curriculum Revisions For The Engineering Technology Department At Austin Peay State University.** Adel Salama, Austin Peay State University.

* student author

presenting author, if not first author

GEOLOGY and GEOGRAPHY
Warf 121
Peter Li, presiding, Geology and Geography
Tennessee Technological University

- 1:10 **Section Business Meetings: Election of Officers for 2008**
- 1:15 **Water Quality In Cookeville Area – Year 2 Study.** R. C. Lee, C. W. Li, T. Tu, P. Li, Cookeville High School (RCL, TT), Harvard University (CWL), Tennessee Technological University (PL).
- 1:30 **Campus Expansion Feasibility Study Using GIS.** B. F. Richey*, Tennessee Technological University.
- 1:45 **Carbon Dioxide In Watershed.** P. Li, Tennessee Technological University.

* student author

presenting author, if not first author

HISTORY of SCIENCE
Warf 120
James X. Corgan, presiding
Emeritus, Austin Peay State University

- 1:10 **Section Business Meetings: Election of Officers for 2008**
- 1:15 **Using Tennessee State Library & Archives (TSLA) 19th Century Resources.** C. Roberts, Tennessee State Library and Archives, Nashville.
- 1:30 **Weather Along The Trail Of Tears.** M. A. Rose, National Weather Service, Old Hickory, TN.
- 1:45 **Sources for the History of Science and Technology in Tennessee.** J. X. Corgan, Austin Peay State University.
- 2:00 **Derivation Of Kepler's Equation.** K. J. Ryan, Christian Brothers University.
- 2:15 **Robert Oppenheimer: His Life And Its Portrayal In The Media From 1953 To 1954.** L. Bovee*, Tennessee Technological University.
- 2:30 **Scientific American Goes To War, 1914.** G. E. Webb, Tennessee Technological University.

* student author

presenting author, if not first author

MATH and COMPUTER SCIENCE
Wallace 111B
Bob Forrester, Presiding
Volunteer State Community College

- 1:10 **Section Business Meeting: Election of Officers for 2008**
- 1:15 **4-Move Equivalence Of Knots Up To 10 Crossings.** R. K. Sahi, M. K., Dabkowski, N. A. Khan*, Austin Peay State University and University Of Texas At Dallas, Richardson, TX (MD, NK).
- 1:30 **Poisson Process Models For A Combination Of Points And Counts In Space.** H. Wu and M. Kaiser, Austin Peay State University and Iowa State University, Ames, Iowa.
- 1:45 **A Semiparametric Approach To Linear Regression,** M. Allen and D. Long*, Tennessee Technological University and the University of North Carolina, Chapel Hill, NC.
- 2:00 **Action Of Real Forms Of Semi-Simple Lie Groups On Complex Flag Manifolds.** B. Ntatin, Austin Peay State University.
- 2:15 **A Five-Step Linear Multistep Method For The Numerical Integration Of The Time Independent Wave Equation.** J. Henry * and S. Jator, Austin Peay State University.

* student author

presenting author, if not first author

PHYSICS and ASTRONOMY
Lionel Crews, Section Chair
The University of Tennessee at Martin

There will be no business meeting for this Section in 2007

Nanofabrication Through Intensified Plasma Assisted Processing. E. de Silva# and
M. Gibbs *#, Lincoln Memorial University. [to be presented in Engineering or Chemistry]

SCIENCE and MATH TEACHING
Warf 111
Jennifer Thomas, presiding
Belmont University

- 1:10 **Section Business Meeting: Election of Officers for 2008**
- 1:15 **Applied Research In Physics.** E. de Silva# and A. Jzero Canfield*#, Department of Mathematics and Natural Sciences, Lincoln Memorial University.
- 1:30 **A Three-Semester Sequence For Undergraduate Research.** L. McGrew, Belmont University.
- 1:45 **Student Rocket Team.** R. Gostowski# and K. Wallace#, Marshall Space Flight Center-NASA, Huntsville, Alabama and Fisk University.
- 2:00 **Differentiated Instruction In The Science Classroom.** L. Gostowski, Middle Tennessee State University.
- 2:15 **Using Biographies Of Scientists And A Constructivist Approach To Teaching Undergraduate Science Courses.** A. D. Panvini, Belmont University.
- 2:30 **Science Education And Business: BC3 Camp – A Model Parternership.** L. Rennick#, BEP/Foundation Rutherford County Chamber of Commerce, and K. Sadler, L. Gilbert, and L. Gostowski, Middle Tennessee State University.
- 2:45 **Nano-science Workshop For Nashville Public School Science Teachers.** W. Lu#, S. Baker, and R. P. H. Chang, Fisk University, Metropolitan Nashville Public Schools, Department of Materials Science and Engineering, Northwestern University, Evanston, IL.

* student author

presenting author, if not first author

ZOOLOGY
Warf 106
Gilbert Pitts, presiding
Austin Peay State University

- 1:10 **Section Business Meeting: Election of Officers for 2008**
- 1:15 **A Novel Use Of Lineages In The Analysis Of Effective Population Sizes Of A Solitary Carnivore.** A. Nasir*, F. Okenkpu*#, A. Ebedi*#, J Hisey*#, P. Atairu*, M. Kennedy, and B. Carver*, Lee University (AN, FO, AE, and JH), The University of Memphis (JH, MK, and BC), and Freed Hardeman University (BC).
- 1:30 **Lineage Effects On Inbreeding Coefficients Of A Solitary Carnivore.** P. Atairu*#, A. Nasir*, J Hisey*#, M. Kennedy, and B. Carver*, Lee University (PA, AN, and JH), The University of Memphis (JH, MK, and BC), and Freed Hardeman University (BC).
- 1:45 **Food Habits Of The Coyote (*Canis latrans*) In Western Tennessee.** Jeremy S. Dennison* and Michael L. Kennedy, The University of Memphis.
- 2:00 **An Assessment Of Species Richness And Habitat Heterogeneity Of Small Mammals In Colima, Mexico.** J. Erin Fender* and Michael L. Kennedy, The University of Memphis.
- 2:15 **A Preliminary Report On The Structure And Composition Of A West Tennessee Turtle Assemblage.** Joshua T. Ream and A. Floyd Scott, The Center of Excellence for Field Biology, Austin Peay State University.
- 2:30 **Preliminary Observations On Habitat Preference, Movement Patterns, And Survival Of Introduced Juvenile Alligator Snapping Turtles (*Macrochelys temminckii*).** Joshua T. Ream and A. Floyd Scott, The Center of Excellence for Field Biology, Austin Peay State University.
- 2:45 **Habitat Use And Spatial Dispersion Of Eastern Pipistrelles, *Pipistrellus subflavus*, In A Human-Impacted Cave System.** Riley Seth McCormick¹*, Sarah Jo Jenkins², Eric Johansen¹, Morgan Kurz¹ and Andrew N. Barrass¹, ¹Center of Excellence for Field Biology, Austin Peay State University, ² School of Agriculture, The University of Tennessee at Knoxville.
- 3:00 **Break**
- 3:15 **A Two Year Study Of Over-Winter Survival Rates Of Timber Rattlesnake, *Crotalus horridus*, From An Artificial Hibernaculum.** Danny L. Bryan, Cumberland University.
- 3:30 **Effects Of Confinement And Temperature On Plasma Levels Of Corticosterone In The Northern Watersnake, *Nerodia sipedon* (Colubridae: Natricinae).** Kyle L. Stokes* and Matthew Klukowski, Middle Tennessee State University.
- 3:45 **Sterol Usage In A Goldenrod Gallling Midge Symbiotic With A Fungus.** Eric M. Janson*, Robert J. Grebenok and Patrick Abbot, Vanderbilt University and Canisius College, Buffalo, New York.
- 4:00 **DNA-Based Assays Reveal The Presence Of *Batrachochytrium dendrobatidis* In The Great Smoky Mountains, A Global Hotspot Of Amphibian Diversity.** Jill Kay*, Betsie Rothermel, and Chad Brooks, Austin Peay State University.

* student author

presenting author, if not first author

ZOOLOGY (cont.)

- 4:15 **Review Of Nomenclature And Comments On The Genus *Leiobunum* (Arachnida: Phalangida: Sclerosomatidae) Of North America.** Charles R. McGhee, Department of Biology, Middle Tennessee State University.
- 4:30 **The Zoology Section Of The Tennessee Academy Of Science: 1944-2007.** John Koons, John L. Butler¹, and Jim Corrigan, ¹Jackson State Community College.

POSTERS ON DISPLAY
Rochelle Center

*student author # presenting author, if not first author

BOTANY

Diversity Of Soil Bacteria Around Native And Exotic Plants. A. Nause* and D. Panvini, Belmont University.

Insect Herbivory On Exotic Vinca And Native Goldenseal. A. O'Steen* and D. Panvini, Belmont University.

A Preliminary Floristic Survey Of The Tennessee River Gorge Grant Tract, Marion County, Tennessee. I. Cohen* and J. Shaw, University of Tennessee at Chattanooga.

Enhanced Nonphotochemical Dissipation Of Excitation Energy During The Development Of Photochemistry In *Selenastrum capricornutum*. J. Greenman* and J. Lebkuecher, Austin Peay State University.

CELL AND MOLECULAR BIOLOGY

A Comparison Of Visual Versus Olfactory Cues For Mate Selection In Zebrafish, *Danio rerio*. Z. Caro* and L. McGrew, Belmont University.

The Effects Of Caffeine On Learning In Zebrafish, *Danio rerio*. A. Gilliland* and L. McGrew, Belmont University.

The Effects Of Pigment Patterns On Socialization In Zebrafish, *Danio rerio*. M. Howell*, L. Yandell and L. McGrew, Belmont University.

Nicotine Facilitates Learning In Zebrafish, *Danio rerio*. R. Repasky* and L. McGrew, Belmont University.

Role Of Serotonin In Caffeine-induced Locomotory Changes In *Caenorhabditis Elegans*. Stupar* and L. McGrew, Belmont University.

Characterization Of "Shrinker" Mutants In *Caenorhabditis Elegans*. B. Woodard* and L. McGrew, Belmont University.

Sequencing Candidate Genes For Drought Tolerance In Alfalfa (*Medicago sativa* L.) S. Celada*, R. Lovett*, and M. Sledge, David Lipscomb University.

Differential Localization Of MMP-2 Isoforms In Autoimmune Thyroid Tissue. N. Mohyuddin* and M. W. Thompson#, *Belmont University and #Middle Tennessee State University.

Studies On The Endocrine Disrupting Potentials Of Food Colorants. C. Sheng*, N. Smith*, P. Datta* and S. Lundin-Schiller, Austin Peay State University.

The Effect Of Estradiol-17 β , Progesterone And Dibutyl-cAMP On Expression of Oxytocin Receptor mRNA. E. Hadley* and S. Lundin-Schiller, Austin Peay State University.

***Caenorhabditis elegans* Immune Pathways In Defense Against *Streptococcus pneumoniae*.** S. May* and N. Ragsdale, Belmont University.

POSTER PRESENTATIONS

CELL AND MOLECULAR BIOLOGY (cont.)

The Short Term And Long Term Effects Of 6-OHDA Treatment In *Caenorhabditis elegans*. C. Wilson* and N. Ragsdale, Belmont University.

The Effect Of 6-OHDA Treatment On Parkin And Alpha-Synuclein Homologues Levels In *Caenorhabditis elegans*. J. Rix* and N. Ragsdale, Belmont University.

Formation Of A20:UDG Complex And Identification Of Monoclonal Antibodies That Disrupt The Complex. S. Brandt* and D. Chattopadhyay (TAS sponsor: N. Ragsdale), Belmont University and the University of Alabama Birmingham.

CHEMISTRY

The Polycoupling Approach To Substituted Thiophenes. S. T. Varallo* and S. T. Handy, Middle Tennessee State University.

The Polycoupling Approach To Substituted Thiophene Aldehydes. D. M. Mayi* and S. T. Handy, Middle Tennessee State University.

The Polycoupling Approach To Substituted Furans And Pyrimidines. S. C. Chesak* and S. T. Handy, Middle Tennessee State University.

The Polycoupling Approach To Substituted Thiazoles. T. Walker* and S. T. Handy, Middle Tennessee State University.

The Synthesis Of Fluorine-Containing Chalcones. A. Guerrero* and D. J. Swartling, Tennessee Technological University.

Synthesis Of Isomers Of 2,3-Dihydroxy-1,4-butanamine. C. Davis* and N. K. Dunlap, Middle Tennessee State University.

Alternative DNA Staining Strategies In Agarose Gel Electrophoresis In Forensic Analysis. A. Nguy* and J. O. Boles, Tennessee Technological University.

Electron Microscopy Of The Ce(IV)/SiO₂ Solid-Supported Reagent. K. J. Stanislav*, A. L. Newsome, M. R. Wells, and M. V. Stewart, Middle Tennessee State University.

The Knoevenagel Reactions Of Meldrum's Acid With Aldehydes And Ketones. D. Roubik* and D. J. Swartling, Tennessee Technological University.

Aurones: Synthesis And Photophysical Properties. C. Boller* and S. T. Handy, Middle Tennessee State University, and S. Bane, Binghamton University, Binghamton, NY.

An Investigation Of The PLP-□-Chloro-Alanine Reaction By LC/MS/MS. T. King* and J. O. Boles, Tennessee Technological University.

Synthesis Of Cyclopropyl And Tetrazole Peptidomimetics Of D-ala-D-ala. E. Hawkins*, P. Singer*, and N. K. Dunlap, Middle Tennessee State University.

Electronic Structure And Oxidation Of Manganese Dimers [Mn(SALPN)(OCH₃)₂] And [Mn₂(SALPN)₃]. M. Clay* and R. M. Jones, Austin Peay State University.

POSTER PRESENTATIONS

CHEMISTRY (cont.)

Suzuki Couplings On Quinolines. A. Piala* and S. T. Handy, Middle Tennessee State University.

Synthesis And Characterization Of New Chromone Thiosemicarbazone Compounds. E. Stoner* and E. C. Lisic, Tennessee Technological University.

Coulombic Model Of The Anomalous Conformations Of The Chlorinated Acetates. T. A. Barnes* and P. J. MacDougall, Middle Tennessee State University.

Chemical Profiling Clandestine Methamphetamine. B. Maldireddy* and J. O. Boles, Tennessee Technological University.

Methods Development For The Determination of Fluoride In Archaeological Analysis Of Faunal Remains. T. Vu*#, R. W. Chong*#, K. Banks-Word*, N.-S. Chong, J. M. Iriarte-Gross, and K. E. Smith, Middle Tennessee State University.

Experiment Vs. Computation: What Does Nature Think Of Human-Designed Proteins? B. A. Repasky*, Belmont University, and B. M. Dorr*, C. A. Fortenberry, L. Mizoue, and J. Meiler, Vanderbilt University.

Organic Texts: What Do We Actually Cover? E. G. Ennis*, A. J. Phelps, and M. J. Sanger, Middle Tennessee State University.

Lipid Peroxide Levels In Methyl-Linolenate Following Exposure To Low Levels Of Iron. A. Baxley* and W. Y. Boadi, Tennessee State University.

Mutation Of Yeast Cells To Produce Mitochondria-Deficient Strains With High Ethanol Tolerance. K. R. Lankford* and B. G. Ooi, Middle Tennessee State University.

Mercury Emission From Terrestrial Background Surfaces In The Eastern USA: Air/Surface Exchange Of Mercury From An Open Field Site. H. Zhang and T. Kuiken*, Center for the Management, Utilization, and Protection of Water Resources and Department of Chemistry, Tennessee Technological University.

Analysis Of Volatile Organic Compounds By Sorbent Tube And Infrared Spectroscopic Techniques. C. Lampert* and N.-S. Chong, Middle Tennessee State University.

Detection Of Pseudophedrine Using Nitroferricyanide. R. Newhouse* and E. C. Lisic, Tennessee Technological University.

Determination Of NMR Parameters Needed To Study miRNA. P. Mnrirajd* and J. C. Howard, Middle Tennessee State University, and E. Dawson, BioVentures, Inc., Murfreesboro, TN.

A Fluorescence And Kinetic Study Of The Interaction Between Gabapentin And Tissue Transglutaminase. J. Gunter*, D. J. Swartling, and J. O. Boles, Tennessee Technological University.

Probing The DNA-Binding Capability Of 4-Aminobiphenyl And Its Metabolites By Raman Spectroscopy. E. M. Fikremariam* and B. G. Ooi, Middle Tennessee State University.

Separation Of The Minor Actinide Elements From Lanthanide Fission Products Using Soft Donors. M. H. Zimmerman* and D. D. Ensor, Tennessee Technological University.

POSTER PRESENTATIONS

CHEMISTRY (cont.)

Nickel And Copper Modulates Glutathione Levels In U937 Cells. S. Harris* and W. Y. Boadi, Tennessee State University.

New Palladium Complexes For Anti-Cancer Research. R. Huxford* and E. C. Lisic, Tennessee Technological University.

Extraction Of Cesium From Alkaline Media Utilizing A Functionalized Calix[4]Arene-Benzocrown Ether. J. D. Partridge* and D. D. Ensor, Tennessee Technological University, L. H. Delmau, and B. A. Moyer, Chemical Separations Group, Chemical Sciences Division, Oak Ridge National Laboratory, and R. Bartsch, and H. Zhou, Department of Chemistry, Texas Tech University, Lubbock, TX .

GEOLOGY AND GEOGRAPHY

Geographic Distribution Of Old, High-Level Alluvial Deposits In East-Central Tennessee, And Implications For Origin. J. L. Gentry*, Tennessee Technological University.

Land Use Land Cover Change In A Small Rural Watershed. – G. J. Rhinehart*, Tennessee Technological University.

HEALTH AND MEDICAL SCIENCES

Effects Of Two Different Types Of Cellular Phone Conversations On Gait Characteristics While Walking. T. McDonough* and C. S. Murphree, Belmont University.

Development of Natural Cancer Formulations. J.T. Thornthwaite, W.H. Peeples, C. Stanfill, J. Purvis*#, and D. Simons. Cancer Research Institute of West Tennessee and Freed-Hardeman University.

DNA Flow Cytometric Analysis Of Human Ovarian Benign Amo Malignant Tissues. C. Stanfill*, A. Ahmed, and J.T. Thornthwaite. Cancer Research Institute of West Tennessee and Freed-Hardeman University.

MICROBIOLOGY

Hydrogen Production By Cyanobacteria And Algae In Hollow-Fiber Photobioreactors. C. Wilkins*# and S. Markov, Austin Peay State University.

Detection And Differentiation Of *Borrelia* Species Using A Novel Non-Fluorescence Based Biosensor. K.A. Barber*, N.F. Brady, W.R. Robertson and S.M. Wright, Middle Tennessee State University.

A Microfluidic Interface To Screen Printed Platinum Electrodes. J. McGill*, I. Ges, J. Merritt, D. Cliffl, J. Wikswo, Vanderbilt University.

Testing Disinfectants For Antifungal Activity. B. Tahriri* and J. M. Zamora, Middle Tennessee State University.

POSTER PRESENTATIONS

PHYSICS AND ASTRONOMY

Weather Observations Using A Small Sounding Rocket. T. Fatokun^{*#}, R. Gostowski, K. Wallace, Fisk University, Marshall Space Flight Center and Fisk University.

SCIENCE AND MATH TEACHING

Correlation Of The Densities Of Antifreeze Concentrations With The Drop In Freezing Points. T. Horseman^{*} and B. A. Jackson, Tennessee Technological University.

Development And Implementation Of An Undergraduate Course In Agroterrorism: Methodology And Pedagogy. W. J. Caldwell, D. L. Sudbrink Jr., J. K. Goode, Austin Peay State University.

GRITS: A Dissemination Project To Encourage Girls Raised In Tennessee Science. J. M. Iriarte-Gross[#] and K. Claud, Middle Tennessee State University.

What We Have Learned From SENCER Since SSI 2005. M. R. Weller, J. M. Iriarte-Gross[#], and J. Swoner^{*}, Middle Tennessee State University.

Eleven Years Of Expanding Your Horizons In Science And Mathematics In Tennessee. J. M. Iriarte-Gross[#], S. Serati^{*}, R. Zijlstra[#], J. Ilsley^{*}, and E. Zijlstra^{*}, Middle Tennessee State University.

ZOOLOGY

Examining The Impact Of Human Activity On Swan Lake. J. Neblett^{*} and D. Panvini, Belmont University.

Use Of The Tennessee Department Of Environment And Conservation "Save Our Stream" Survey At Big Mcadoo Creek In Montgomery County Tennessee. Y. Eaton^{*}, R. Jordan^{*} and W.S. Burton, Austin Peay State University.

A Stream Assessment And Monitoring Project Of Two Streams Along The State Route 79 Road Construction In Stewart County, Tennessee: The Preliminary Study. L.J. Inglis^{*} and W.D.S. Burton, Austin Peay State University.

Salamander Species Of Montgomery County, Tennessee In Rural And Urban Streams. R.N. Jobes^{*}, A.D. Pace^{*} and W.D.S. Burton, Austin Peay State University.

Distribution Of Aquatic Coleoptera In The Milan Army Ammunition Plant, Carroll and Gibson Counties, TN. J. J. Miller^{*} and S. W. Hamilton, Austin Peay State University.

Herpetofaunal Diversity And Abundance At Cattle-Access And Non-Cattle Access Ponds At The Milan Army Ammunition Plant, Gibson And Carroll Counties Tennessee. B. Beas^{*} and A. F. Scott, Austin Peay State University.

Aquatic Macroinvertebrate Diversity In Natural Riffle, Artificial Riffle, And Pool Habitats From A Northwest Tennessee Stream. T. Duke^{*} and N. Buschhaus, University of Tennessee at Martin.

POSTER PRESENTATIONS

ZOOLOGY (cont.)

Relatedness And Inbreeding In Eastern Subterranean Termite Populations At Montgomery Bell State Park, Dickson County, Tennessee. I. L. Beck*, S. Murphree and E. Vargo, Belmont University and North Carolina State University, Raleigh, North Carolina.

Preliminary Results Of Treefrog Occupancy Surveys In Western Kentucky And Adjacent Tennessee. L. Robertson* and B. Rothermel, Ph.D, Austin Peay State University

Use Of TreeTop Peeper™ To Investigate Cavity Succession In A Fragmented Habitat. C.L. Sesler* and H. D. Wilkins, University of Tennessee at Martin.

The Efficacy Of Selected Over-The-Counter Chemical Repellents Against *Aedes aegypti* In Human Volunteer Laboratory Assays. C. Pedigo* and S. Murphree, Belmont University.

The Efficacy Of Selected Botanically Derived Biorepellents Against *Aedes aegypti* In Human Volunteer Laboratory Assays. M. Draper* and S. Murphree, Belmont University.

A New Look At An Old Question: Combating Mosquitoes With Natural Larvicides. H. Al-Radaei*#, M. Caudill*#, A. DeSisto*# and J. J. Green, Nashville State Technical Community College.

TAS Standing Committees 2007

Auditing and Financial Oversight Committee

Dr. Robert Grammer, Chair, Belmont University

Dr. Jon Lowrance, Lipscomb University

Dr. John Harris (advisory), Tennessee Technological University

Fellows Committee

Dr. Charles R. McGhee, Chair, Middle Tennessee State University

Dr. Gladius Lewis, University of Memphis

Brother Kevin Ryan, Christian Brothers College

Long Range Strategic Planning Committee

Dr. John Harris, Chair, Tennessee Technological University

Dr. Jeff Boles, Tennessee Technological University

Teresa Fulcher, Pellissippi State Community College

Karen Kendall-Fite, Columbia State Community College

Dr. Steven Murphree, Belmont University

Education Committee

Dr. Kim Cleary Sadler, Chair, Middle Tennessee State University

Dr. Cindi Smith-Walters, Middle Tennessee State University

Dr. Michael L. Daley, University of Memphis

Dr. Robert L. Hartshorn, University of Tennessee at Martin

Dr. Linda Jordan, Tennessee Department of Education

Dr. Robert Marlowe, University of Tennessee at Chattanooga

Dr. Jack Rhoton, East Tennessee State University

Membership Committee

Karen Kendall-Fite, Chair, Columbia State Community College

Dr. Gary Hall, David Lipscomb University

Dr. Jeffrey Lebkeucher, Austin Peay State University

Necrology Committee

Dr. Alexander Wells, Chair, Tennessee State University

Dr. George Murphy, Middle Tennessee State University

Dr. Wilburn A. Sliger, The University of Tennessee at Martin

Nominating Committee

Dr. John W. Harris, Chair, Tennessee Technological University

Dr. George E. Webb, Tennessee Technological University

Dr. Cindi Smith-Walters, Middle Tennessee State University

Publicity and Research Committee

Ms. Mandy Carter-Lowe, Chair, Columbia State Community College

Dr. Jeff Boles, Tennessee Technological University

Dr. Patricia Hull, Tennessee State University

Dr. Lewis Myles, Tennessee State University

Dr. Kim Cleary Sadler, Middle Tennessee State University

Mr. Roger D. Applegate, Tennessee Wildlife Resources Agency

Resolutions Committee

Ms. Sallie Noel, Chair, Austin Peay State University

Ms. Betty Davis, East Tennessee State University

Dr. David Pitts, University of Tennessee - Martin

2007 TAS Executive Committee

Dr. George E. Webb, President

Tennessee Technological University

Dr. Cindi Smith-Walter, President-Elect

Middle Tennessee State University

Dr. John W. Harris, Past-President

Tennessee Technological University

Ms. Teresa Fulcher, Secretary

Pellissippi State Technical Community College

Dr. C. Steven Murphree, Treasurer

Belmont University

Dr. M. Gore Ervin, Managing Editor

Middle Tennessee State University

Dr. Fred Matthews, Director -Collegiate Division

Austin Peay State University

Dr. James Howard, Director - Electronic Communications

Middle Tennessee State University

Dr. Jack Rhoton, Director - Junior Academy of Science

East Tennessee State University

Dr. Michael Daley, Director-Visiting Scientist Program

The University of Memphis

Dr. Kim Cleary Sadler, Chair, Education Committee

Middle Tennessee State University

Dr. John Harris, Long Range Planning Committee

Middle Tennessee State University

Ms. Mandy Carter-Lowe, Chair, Publicity and Research Committee

Columbia State Community College

Dr. Linda Jordan, State Science Consultant

Tennessee Department of Education

Dr. J. Michael Redding, Annual Meeting Coordinator

Tennessee Technological University

Dr. Steven Hamilton, Member-at-large, 2005-2007

Austin Peay State University

Dr. Jeffrey O. Boles, Member-at-large, 2006-2008

Tennessee Technological University

William H. Andrews, Member-at-Large, 2007-2009

Oak Ridge National Laboratory

2007 Local Arrangements Committee

Ms. Nancy Morris

Driving Directions

Volunteer State Community College is located on Highway 31 East –which is also called Gallatin Road and/or Nashville Pike. The College is located on the main highway between Gallatin and Hendersonville at 1480 Nashville Pike.

If traveling Interstate 65:

Travel north (toward Louisville) and take the Vietnam Veteran Boulevard (exit 95) and travel approximately 14 miles to the Harris Lane Exit. Make a right on Harris Lane. Then make a right turn on Nashville Pike. Volunteer State Community College is on the right at the second stop light.

If traveling Interstate 40:

Travel east (from Nashville) or west (toward Nashville) and take the Gallatin exit onto Highway 109. Keep straight for approximately 15 miles to the Gallatin By-Pass (there is a “To Hendersonville” directional sign). Turn left onto the By-Pass and continue straight. Take the Hendersonville exit onto Gallatin Road and continue straight. Volunteer State’s main entrance is on the right at the fifth (5th) traffic signal.

If traveling Interstate 24:

Travel east (toward Chattanooga) and take I-24-E to Interstate 65 north (to Nashville). Take the Vietnam Veterans Blvd. (exit 95) and travel approximately 9 miles, until the road merges into Gallatin Road. Continue straight for approximately 3-1/2 miles. Volunteer State is on the left at the fourth (4th) traffic signal.

Campus Map and Parking Instructions

A campus map for Volunteer State Community College may be obtained at their official website: <http://www.volstate.edu/Map/VSCC-Map.pdf>. There will be reserved parking for the TAS meeting and all parking will be contiguous to the Pickel Field House and will be well-marked.

Overnight Accommodations

Recommended motels close to the Volunteer State Community College campus in Gallatin are listed on the TAS Website <http://www.mtsu.edu/~tnacadsc/annualMeeting/index.html>.