

STUDENT PRESENTATION AWARDS AT THE 114TH MEETING OF THE TENNESSEE ACADEMY OF SCIENCE

ORAL PRESENTATIONS

Botany

First Place (tie)—Mark Vance. Ecology of *Cantanea Dentata* at Mammoth Cave National Park. Tennessee Technological University, Cookeville, Tennessee.

First Place (tie)—T. J. Durham. Gametophytic and Sporophytic Responses of *Pteris* Species to Arsenic. Tennessee Technological University, Cookeville, Tennessee.

Second Place—Dwayne Coleman. Seasonal Changes in Herb Layer Cover and Species Composition in Table Mountain Pine (*Pinus pungens* Lamb.) Forests of the Great Smoky Mountains National Park, Tennessee. Middle Tennessee State University, Murfreesboro, Tennessee.

Cell and Molecular Biology, Health and Medical Science, and Microbiology

First Place—Benjamin. E. Jordan. The Detection of *Borrelia* Species in Non-Migratory Avians in Tennessee. Middle Tennessee State University, Murfreesboro, Tennessee.

Second Place—Katherine. R. Onks. Evaluation of Fluorescence Based Antigen-Antibody Binding Through Microarray Confocal Laser Scanning. Middle Tennessee State University, Murfreesboro, Tennessee.

Third Place—Aloice Aluoch. Tributyltin-Induced Effects on MAP Kinases p38 and p44/42 in Human Natural Killer Cells. Tennessee State University, Nashville, Tennessee.

Chemistry

First Place—William C. Crocker. Estimation of Emission of Dissolved Gaseous Mercury (DGM) in a Southern Reservoir Lake Using Two-Thin Film Model. Tennessee Technological University, Cookeville, Tennessee.

Engineering and Engineering Technology

First Place—Ryan O'Hara. Geometrical Effect in the Translocation Transport in Nanocavities and its Role in the Separation Efficiency of Macromolecules. Tennessee Technological University, Cookeville, Tennessee.

Second Place—Barath Baburao. Significance of Association Schemes in Modeling Aqueous Hydrogen Fluoride Mixtures. Tennessee Technological University, Cookeville, Tennessee.

Third Place—Manikya Mellachuruvu. Pulsed Electrical Field Flow Fractionation. Tennessee Technological University, Cookeville, Tennessee.

Geology and Geography

First Place—Elizabeth Rhenburg. Preliminary Field Research of Stromatolites in Laguna Bacalar, Mexico. University of Tennessee, Martin, Tennessee.

Second Place—Yuko Takashita. Preliminary Results of a Field

Study of Bryozoan Thickets from the Tanosawa Formation of Japan. University of Tennessee, Martin, Tennessee.

Third Place—Rebecca Seago. The Grand Canyon: A Look at the 1983 and 1996 Flood Sands. The University of Memphis, Memphis, Tennessee.

Mathematics and Computer Science

First Place—Saravanan Swaminathan. Investigating the Pure Component Parameterization Procedures and Their Effects in Predicting Mixture Phase Properties via Equations of State. Tennessee Technological University, Cookeville, Tennessee.

Second Place—Sanjay Dube. Evaluation of the Integrate Method in Mixture Phase Equilibrium Calculations Using Equations of State. Tennessee Technological University, Cookeville, Tennessee.

Third Place—Devon Zhang. Independent Component Analysis and Watermark Attack. Tennessee Technological University, Cookeville, Tennessee.

Physics and Astronomy

First Place—Marian Axente. Creating Use of LabView in a Dynamic Light Scattering Autocorrelator. University of Tennessee, Chattanooga, Chattanooga, Tennessee.

Second Place—Andrea Sease. Raman Spectra of the Interaction of Antifreeze Glycoprotein and Ice. Fisk University, Nashville, Tennessee.

Third Place—Dawit Jowhar. Fabrication and Characterization of TiO₂ NanoRods. Fisk University, Nashville, Tennessee.

Science and Mathematics Teaching

First Place—Caroline Bishop. Women in Science and Engineering: A Student Organization for All Women in Science, Technology, Engineering, and Mathematics. Middle Tennessee State University, Murfreesboro, Tennessee.

Zoology I

First Place—Matthew L. Niemiller. Comparative Demography of the Tennessee Cave Salamander (*Gyrinophilus palleucus*) in Middle Tennessee. Middle Tennessee State University, Murfreesboro, Tennessee.

Second Place—J. Jeffrey Green. Body Temperature Selection of Black Racers (*Coluber constrictor*) in Middle Tennessee. Middle Tennessee State University, Murfreesboro, Tennessee.

Third Place—Chadwick Hanna. Thermal Effects on Green Lynx Spider Egg Sacs and Hatching. Middle Tennessee State University, Murfreesboro, Tennessee.

Zoology II

First Place—Eric Copas. Movements, Home Range, and Food Habits of Fishers (*Martes pennanti*) Reintroduced into Ten-

nessee at Catoosa Wildlife Management Area. Tennessee Technological University, Cookeville, Tennessee.

Second Place—Jason B. Jennings. Predation by Mammalian Mesopredators on Artificial Nests of Northern Bobwhites. The University of Memphis, Memphis, Tennessee.

Third Place (tie)—Laura Mills. Developing Biotic Integrity Metrics to Identify Impacts of Land Use on Wetlands. Austin Peay State University, Clarksville, Tennessee.

Third Place (tie)—Philip Johnson. An Assessment of Population Abundance of White-Tailed Deer (*Odocoileus virginianus*). The University of Memphis, Memphis, Tennessee.

POSTER PRESENTATIONS

Botany

First Place—Chris Hancock. Plant and Soil Differences on a Topographic Sequence in Rutherford County. Middle Tennessee State University, Murfreesboro, Tennessee.

Cell and Molecular Biology, Health and Medical Science

First Place—Tiffany E. Guess. Reovirus Serotype-Dependent Chemokine and Replication Differences in a Human Monocyte Cell Line. Middle Tennessee State University, Murfreesboro, Tennessee.

Second Place—L. Thomas. Tributyltin Exposure Causes Decreased Granzyme B and Perforin Levels in Human Natural Killer Cells. Tennessee State University, Nashville, Tennessee.

Chemistry

First Place—Pooja Marella. Synthesis of Weakly Coordinating Trisphat Anion. Middle Tennessee State University, Murfreesboro, Tennessee.

Engineering and Engineering Technology

First Place—Michael Russell. Integration of 3D Printing Technology Into 2D Design and Production: Assessment Studies. Tennessee Technological University, Cookeville, Tennessee.

Second Place—Heather R. Pridemore. Role of Geometry on the Effective Diffusivity and Mobility in Microdevices for Electrophoretic Separations. Tennessee Technological University, Cookeville, Tennessee.

Third Place—S. K. Modhamad-Abdul. Modeling Cerebrovascular Pressure Transmission. The University of Memphis, Memphis, Tennessee.

Geology and Geography

First Place—Cliff Hoeffner. Cellular Phone Tower Sitting Using Geographic Information System. Tennessee Technological University, Cookeville, Tennessee.

Second Place—Beth Walton. Geographical Mapping of Methamphetamine Laboratory Seizures in Putnam County and the Surrounding Areas. Tennessee Technological University, Cookeville, Tennessee.

Third Place—Jake Tittle. Analysis of Sex Offenses Using Geographic Information System. Tennessee Technological University, Cookeville, Tennessee.

Microbiology

First Place—B. Jason Hayes. The Isolation and Identification of Novel Bacterial Amoebal Pathogens from Manmade Water Sources. Middle Tennessee State University, Murfreesboro, Tennessee.

Second Place—Wesley Skelton. The Isolation and Identification of *Escherichia coli* Strains Responsible for Calfhood Scours. Middle Tennessee State University, Murfreesboro, Tennessee.

Physics and Astronomy

First Place—Dan Comer. A Study of the Coupled Pendulum. University of Tennessee, Martin, Martin, Tennessee.

Science and Math Teaching

First Place—Rose Darnell. May the Force be With You: Laboratory Activities on Magnetism for Non-Science Majors. Middle Tennessee State University, Murfreesboro, Tennessee.

Second Place—Linda Hendrickson. From the Laboratory to the Health Care Consumer: Explaining the Physical Science Behind an MRI (NMR). Middle Tennessee State University, Murfreesboro, Tennessee.

Zoology

First Place—J. M. Davenport. Herpetofauna of Fort Donelson National Battlefield, Stewart County, Tennessee: A Preliminary Report. Austin Peay State University, Clarksville, Tennessee.

Second Place—George Wyckoff. A Look Into the Diversity of a Temporary Wetland at Arnold Air Force Base. Middle Tennessee State University, Murfreesboro, Tennessee.

Third Place—James B. Akins. An Assessment of Species Richness in Mammals Using Scent-Station Procedures. The University of Memphis, Memphis, Tennessee.