

STUDENT PRESENTATION AWARDS AT THE 117TH MEETING OF THE TENNESSEE ACADEMY OF SCIENCE

ORAL PRESENTATIONS

Botany

First Place—Stacy Huskins. A Preliminary Flora of the North Chickamauga Creek Gorge State Natural Area. University of Tennessee, Chattanooga, Chattanooga, Tennessee.

Second Place—Meagan Binkley. Natural Chestnut-Chinquapin Hybrids Are Confounding Taxonomy: A DNA Sequence-Based Inquiry into Putative Hybrid *Castanea* Populations in the Southeastern United States. University of Tennessee, Chattanooga, Chattanooga, Tennessee.

Third Place—Ryan Miller. Spatial Analysis of Invasive Wetland Plant Species in the Southeast Using Geographic Information Systems and Herbarium Specimens. University of Tennessee, Chattanooga, Chattanooga, Tennessee.

Cell and Molecular Biology

First Place—David Henley. Developing and Evaluating Molecular Methods for Detecting the Amphibian-cidal Fungus, *Batrachochytrium dendrobatidis*. Austin Peay State University, Clarksville, Tennessee.

Second Place—Charles S. Wright. Novel Micro-mirrors to Obtain Three-Dimensional Images of Cells. Vanderbilt University, Nashville, Tennessee.

Third Place—Eric Chung. Blood Separation of Microfluidic Devices. Vanderbilt University, Nashville, Tennessee.

Chemistry

First Place—Elliot G. Ennis. C2 Substituted Imidazolium Salts: The Alkylation Approach. Middle Tennessee State University, Murfreesboro, Tennessee.

Second Place—JoAnn Scales. Oxygen in Graphite Oxide Structures. Fisk University, Nashville, Tennessee.

Third Place—Ablatt Mahsut. Characterization of Anhydrous Oligonucleotides on the Basis of Structure by Ion Mobility-Mass Spectrometry. Vanderbilt University, Nashville, Tennessee.

Engineering and Engineering Technology

First Place—Yuan Li. 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. University of Memphis, Memphis, Tennessee.

Second Place—Nithya Narayanan. Smooth Muscle Cells Signaling Model of Dynamic Cerebro-

vascular Regulation. University of Memphis, Memphis, Tennessee.

Third Place—Elly N. Sinkala. Modifying Tracking in the Magnetic Tweezer System. Vanderbilt University, Nashville, Tennessee.

Geology and Geography

First Place—Brent Richey. Campus Expansion Feasibility Study Using GIS. Tennessee Technological University, Cookeville, Tennessee.

Second Place—Amy L. Herren. Distribution of Silicon Phases Within the Various Facies of the Mine Rock at Franklin Industrial Minerals Operation, Crab Orchard, Tennessee. Tennessee Technological University, Cookeville, Tennessee.

Health and Medical Sciences

First Place—Joseph W. Vazquez. Evaluation of Melittin as a Novel Drug Therapy for Lyme Disease. Austin Peay State University, Clarksville, Tennessee.

History of Science

First Place—Lisa J. Bovee. Robert Oppenheimer: His Life and Its Portrayal in the Media from 1953 to 1954. Tennessee Technological University, Cookeville, Tennessee.

Mathematics and Computer Science

First Place—Joshua W. Henry. A Five-Step Linear Multistep Method for the Numerical Integration of the Time Independent Wave Equation. Austin Peay State University, Clarksville, Tennessee.

Microbiology

First Place—Christina L. Russell. Endemicity of *Borrelia burgdorferi* in Ticks from Montgomery County, Tennessee. Austin Peay State University, Clarksville, Tennessee.

Second Place—Jarillys M. Marin. Comparative Analysis of DNA-Based Assays and Antigen/Antibody Elisa for Detection of *Dirofilaria immitis*. Austin Peay State University, Clarksville, Tennessee.

Third Place—Michelle Drury. Isolation and Identification of Toluene-Degrading Microorganisms. Middle Tennessee State University, Murfreesboro, Tennessee.

Physics

First Place—Mary Gibbs. Nanofabrication through Intensified Plasma Assisted Processing. Lincoln Memorial University, Harrogate, Tennessee.

Science and Mathematics Teaching

First Place—Athena Jzaro Canfield. Applied Research in Physics. Lincoln Memorial University, Harrogate, Tennessee.

Zoology

First Place—J. Erin Fender. An Assessment of Species Richness and Habitat Heterogeneity of Small Mammals in Colima, Mexico. University of Memphis, Memphis, Tennessee.

Second Place—Jillian B. Kay. DNA-Based Assays Reveal the Presence of *Batrachochytrium dendrobatidis* in the Great Smoky Mountains, a Global Hotspot of Amphibian Diversity. Austin Peay State University, Clarksville, Tennessee.

Third Place—Joshua T. Ream. Preliminary Observations on Habitat Preference, Movement Patterns, and Survival of Introduced Juvenile Alligator Snapping Turtles (*Macrochelys temminckii*). Austin Peay State University, Clarksville, Tennessee.

POSTER PRESENTATIONS

Botany

First Place—Amy Nause. Diversity of Soil Bacteria around Native and Exotic Plants. Belmont University, Nashville, Tennessee.

Second Place—Annie Lou M. O'Steen. Insect Herbivory on Exotic Vinca and Native Goldenrod. Belmont University, Nashville, Tennessee.

Cell and Molecular Biology

First Place—Ed Hadley. The Effect of Estradiol-17 β , Progesterone and Dibutyl-cAMP on Expression of Oxytocin Receptor mRNA. Austin Peay State University, Clarksville, Tennessee.

Second Place—Sherly I. Celada and Rachel H. Lovett. Sequencing Candidate Genes for Drought Tolerance in Alfalfa (*Medicago sativa* L.). David Lipscomb University, Nashville, Tennessee.

Third Place—Sarah Brandt. Formation of A20:UDG Complex and Identification of Monoclonal Antibodies That Disrupt the Complex. Belmont University, Nashville, Tennessee.

Geology and Geography

First Place—Gregory J. Rhinehart. Modeling Land Use Change in Cane Creek Watershed Using GIS. Tennessee Technological University, Cookeville, Tennessee.

Second Place—Josh Gentry. Geographic Distribution of Old, High-Level Alluvial Deposits in East-Central Tennessee and Implications for Origin. Tennessee Technological University, Cookeville, Tennessee.

Health and Medical Sciences

First Place—J. Clint Stanfill. DNA Flow Cytometric Analysis of Human Ovarian Benign and Malig-

nant Tissues. Freed-Hardeman University, Henderson, Tennessee.

Second Place—Dale S. Carter. T-Cell Cytokines.... Belmont University, Nashville, Tennessee.

Third Place—Tara McDonough. Effects of Two Different Types of Cellular Phone Conversations on Gait Characteristics while Walking. Belmont University, Nashville, Tennessee.

Microbiology

First Place—Katherine A. Barber. Detection and Differentiation of *Borrelia* Species Using a Novel Non-Fluorescence Based Biosensor. Middle Tennessee State University, Murfreesboro, Tennessee.

Second Place—Chris Wilkins. Hydrogen Production by Cyanobacteria and Algae in Hollow-Fiber Photobioreactors. Austin Peay State University, Clarksville, Tennessee.

Third Place—Andrew Handerson. Detection and Elimination of *Escherichia coli* from Spinach. Middle Tennessee State University, Murfreesboro, Tennessee.

Physics

First Place—Tulolope Fatokun. Weather Observations Using a Small Sounding Rocket. Fisk University, Nashville, Tennessee.

Science and Mathematics Teaching

First Place—Jennifer Ilsley. Eleven Years of Expanding Your Horizons in Science and Mathematics in Tennessee. Middle Tennessee State University, Murfreesboro, Tennessee.

Second Place—Jessica Swoner. What We Have Learned from Science Education for New Civic Engagements and Responsibilities Since SSI 2005. Middle Tennessee State University, Murfreesboro, Tennessee.

Zoology

First Place—Benjamin J. Beas. Herpetofaunal Diversity and Abundance at Cattle-Access and Non-Cattle Access Ponds at the Milan Army Ammunition Plant, Gibson and Carroll Counties, Tennessee. Austin Peay State University, Clarksville, Tennessee.

Second Place—Habib Al-Radaei, Megan Caudill, and Angella DeSisto. A New Look at an Old Question: Combating Mosquitoes with Natural Larvicides. Nashville State Technical Community College, Nashville, Tennessee.

Third Place—Jamie J. Miller. Distribution of Aquatic Coleoptera in the Milan Army Ammunition Plant Gibson and Carroll Counties, Tennessee. Austin Peay State University, Clarksville, Tennessee.