

2018

Keynote Address and Meeting Program Report

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KEYNOTE ADDRESS

Natural History Collections and their Role in Arkansas Science and Education

By Dr. Travis Marsico
Department of Biological Sciences, Arkansas State University



Dr. Marsico's research focuses on biogeography, biodiversity conservation, natural history and species invasions. He currently researches risk associated with hitchhiking plant propagules at U.S. shipping ports, invasion of herbivorous insect pests, plant diversity patterns in fragmented landscapes of the Upper Mississippi River Alluvial Plain, and plant diversity patterns along elevation gradients in the Neotropics. His work emphasizes making and utilizing natural history collections in research. He also studies biology education and improvements to university-level education, utilizing specimen-based projects in coursework. Marsico has been a faculty member at Arkansas State University for eight years, where he teaches Curation of Collections, Dendrology, Global Change Biology, Mechanisms of Speciation, Natural History Collections Research Design, and Plant Systematics. At A-State, Marsico curates the herbarium and manages the Laboratory Sciences Greenhouse

For the plenary session on Friday evening, Dr. Marsico will discuss the important role that natural history collections have played in shaping scientific knowledge in Arkansas. In his talk, he will also address current biodiversity research being conducted by students and faculty members associated with the newly formed Arkansas Center for Biodiversity Collections (ACBC) at Arkansas State University. He will highlight expanded opportunities for educating students in basic and applied biodiversity science through the ACBC. Finally, Marsico will share his vision for how research utilizing natural history collections is as relevant as it has ever been on a planet with natural ecosystems threatened by anthropogenic pressures.

SECTION PROGRAMS ORAL PRESENTATIONS

(Presenter is underlined; * - Undergraduate ** - Graduate)

ORAL SESSIONS: FRIDAY 1:00-5:30

AQUATIC BIOLOGY, WHITE RIVER ROOM

1:00

EFFECTS OF RECREATIONAL BOAT NOISE ON AVOIDANCE AND FEEDING BEHAVIORS IN AN IMPORTANT FRESHWATER STREAM FISH

Claire Turkal*, Hendrix College

Co-Authors: *Trystin F. Anderson, Maureen R. McClung*

1:15

CULTURE-INDEPENDENT ANALYSIS OF HOT SPRINGS NATIONAL PARK THERMOPHILES

Taylor Stone*, Hendrix College

Co-Author: *Matthew Moran*

1:30

STOCKING ASSESSMENT AND LONG-TERM IMPACTS OF NON-NATIVE WALLEYE ON THE NATIVE POPULATION IN THE ELEVEN POINT RIVER, ARKANSAS

Dustin Thomas** , Arkansas State University

Co-Authors: *Brook Fluker, Brett Timmons*

1:45

DISTRIBUTION RECORDS OF THE CHESTNUT LAMPREY IN ARKANSAS

Jeremiah Salinger** , University of Arkansas at Pine Bluff

Co-Author: *Ron Johnson*

2:00

AQUATIC INVERTEBRATE COMMUNITY ASSESSMENTS AT OZARK NATIONAL SCENIC RIVERWAYS, MISSOURI, 2005-2014

David Bowles, U.S. National Park Service

Co-Authors: *Lloyd W. Morrison, Janice A. Hinsey, J. Tyler Cribbs*

2:15

NEW APPLICATIONS OF RADIO FREQUENCY IDENTIFICATION STATIONS FOR MONITORING FISH MOVEMENT THROUGH HEADWATER ROAD CROSSINGS AND NATURAL REACHES

Charles Gagen, Arkansas Tech University

GENERAL BIOLOGY & ECOLOGY, MOCKINGBIRD ROOM

1:00

IMPACT OF LESPEDEZA CUNEATA INVASION ON ARTHROPOD ABUNDANCE IN A TALLGRASS PRAIRIE

Adam Turner*, Hendrix College Co-Author: *Caroline Kirksey*

1:15

PATTERNS OF LESPEDEZA CUNEATA INVASION IN TALLGRASS PRAIRIES AND ARTHROPOD COMMUNITY STRUCTURE

Carolina Kirksey*, Hendrix College

Co-Author: *Adam Turner*

1:30

UNCONVENTIONAL GAS DEVELOPMENT EFFECTS ON ECOSYSTEM SERVICES IN THE FAYETTEVILLE SHALE OF ARKANSAS

Varenva Nallur, Hendrix College

1:45

AEROBIC PUSHUPS: CUTANEOUS VENTILATION IN OVERWINTERING SMOOTH SOFTSHELL TURTLES, APALONE MUTICA

Caleb O'Neal*, Harding University

Co-Author: *Michael V. Plummer*

2:00

GERMINAL EPITHELIUM CYTOLOGY DURING SPERMATOGENESIS IN THE ALLIGATOR SNAPPING TURTLE, *MACROCHELYS TEMMINCKII* (REPTILIA: CHELYDRIDAE)

Stan Trauth, Arkansas State University

2:15

SOIL CRUST ALGAL COMMUNITIES OF WARREN PRAIRIE NATURAL AREA

Karen Fawley, University of Arkansas at Monticello

Co-Authors: *Rachel Knight, Caleb Lamb, Brent Baker, Marvin Fawley*

MEDICINE, MOLECULAR & CELLULAR BIOLOGY, BLACK RIVER ROOM

1:00

THE MECHANISM OF THYMOQUINONE-INDUCED APOPTOSIS IN ORAL CANCER CELLS

Malcolm Anderson* University of Arkansas at Pine Bluff

Co-Author: *Selma Dagtas*

1:15

TERBINAFINE BIOACTIVATION: DETERMINING PATHWAY TO REACTIVE METABOLITE ACCUMULATION USING COMPUTATIONAL MODELING AND EXPERIMENTAL APPROACHES

Dustyn Barnette** , University of Arkansas for Medical Sciences Co-

Authors: *Mary Davis, Lena Dang, Tyler Hughes, S. Joshua Swamidass, Grover P. Miller*

1:30

COUMADIN (WARFARIN) PHARMACOKINETICS CHANGE FOR PEDIATRIC PATIENTS WITH SINGLE

VENTRICLE PHYSIOLOGY DURING INITIATION OF ANTICOAGULANT THERAPY

Dakota Pouncey, University of Arkansas for Medical Sciences

1:45

DAPHNIA MAGNA AS A MODEL ORGANISM FOR SCREENING THE EFFECTS OF DIETARY SUPPLEMENTS

Antoinette Odendaal, Southern Arkansas University

2:00

CYP3A7 METABOLIZES DEXTROMETHORPHAN LESS EFFICIENTLY THAN CYP3A4.

Dhaval Shah, University of Arkansas for Medical Sciences

Co-Author: Grover Miller

2:15

GEOHELMINTH INFECTION, ANEMIA, AND MALNOURISHMENT IN BAWA, CAMEROON AFTER TEN YEARS OF INTERVENTION BY THE BAWA HEALTH INITIATIVE

Dennis Richardson, Quinnipiac University

Co-Author: Sara Karr

**CHEMISTRY & GEOSCIENCES
ARKANSAS RIVER ROOM**

1:00

A BOND VALENCE / BOND LENGTH CORRELATION FOR TANTALUM-OXYGEN BONDS

Blake Ludwig*, Arkansas Tech University

1:15

QUANTIFICATION OF BROMINATED VEGETABLE OIL IN BEVERAGES BY LCMS

Katie Farmer*, Harding University

1:30

DEVELOPMENT OF A NOVEL METHOD FOR PURIFICATION OF RECOMBINANT PROTEINS

Amberly Vaughan*, University of Arkansas

Co-Authors: Musaab Al-Ameer, T.K.S. Kumar

1:45

TREE RING DATING OF THE FICKLIN-IMBODEN LOG STRUCTURES, POWHATAN STATE PARK, ARKANSAS

Kaylee McAdoo*, University of Arkansas

Co-Author: David Stahle

2:00

PHENOMICS APPROACHES TO ELUCIDATE THE CONTRIBUTION OF THE FOUR ASCORBATE PATHWAYS TO ABIOTIC STRESS TOLERANCE IN ARABIDOPSIS

Lucia Acosta-Gamboa**, Arkansas State University

Co-Authors: Nirmal Nepal, Zachary C. Campbell, Shannon Cunningham, Karina Medina-Jimenez, Argelia Lorence

2:15

CYP2C19 AND 3A4 GENERATE A POTENTIALLY TOXIC, REACTIVE TERBINAFINE METABOLITE AS REVEALED THROUGH MODELING AND EXPERIMENTAL METHODS

Mary Davis**, University of Arkansas for Medical Sciences *Co-*

Authors: Anirudh Pidugu, Dustyn Barnette, S. Joshua Swamidass, Grover P. Miller

**ENGINEERING
PINE TREE ROOM**

1:00

DESIGN AND DEVELOPMENT OF A SELF-DRIVING RC CAR

Andrew Lea*, Arkansas Tech University

1:15

A STEP BY STEP DESIGN PROCEDURE FOR CURRENT CONTROL OF A 5 MWTHREE-PHASE GRID-CONNECTED INVERTER

Hamdi Albusnashee**, University of Arkansas

Co-Authors: Manar Alzahlol, Roy McCann

1:30

PROSPECTS OF NANACLAY AS A PAVEMENT CONSTRUCTION MATERIAL

MM Tariq Morshed**, Arkansas State University

Co-Author: Zahid Hossain

1:45

EFFECTS OF ZEOLLITE ON CHEMICAL ELEMENTALS AND GLASS TRANSITION TEMPERATURE OF ASPHALTS

Mohammad Nazmul Hassan**, Arkansas State University

Co-Author: Zahid Hossain

2:00

VARIABLE FREQUENCY DRIVES, PROVIDING ENERGY EFFICIENCY AND ENHANCED CROP PRODUCTION IN AGRICULTURE WHILE IMPROVING WATER MANAGEMENT PROCESSES

Robert Straitt**, Arkansas State University.

Co-Authors: Rajesh Sharma, Paul Mixon, Dr. Steve Green, Dr. Andrzej Rucinski, Dr. Nadya Reingand, Dr. Christophe Paoli, and Mr. Dwight Ellis

**GENERAL BIOLOGY & ECOLOGY
BLACK RIVER ROOM**

3:00

CURRENT AND FUTURE THREATS TO THE CHIHUAHUAN DESERT BIOREGION: A LANDSCAPE-LEVEL ANALYSIS

Helena Abad*, Hendrix College. *Co-Author: Nathan Taylor*

3:15

VALUATION OF ECOSYSTEM SERVICES OF THE ARCTIC NATIONAL WILDLIFE REFUGE

Margaret Young*, Hendrix College

Co-Author: Matthew Moran

3:30

A PROPOSAL FOR PRACTICAL AND EFFECTIVE BIOLOGICAL CORRIDORS IN NORTHWEST COSTA RICA

Allison Monroe*, Hendrix

Arkansas Academy of Science Meeting Program

**3:45
TERRESTRIAL MAMMAL AND BIRD COMMUNITIES IN
PROTECTED AND UNPROTECTED LANDS IN COSTA
RICA**

Benjamin Zamzow*, Hendrix College
Co-Author: Lindsay Stallcup

**4:00
TERRESTRIAL MAMMAL AND BIRD SURVEY RESULTS
IN THE ARENAL – TILARÁN CONSERVATION AREA OF
COSTA**

Sarah Nieman*, Hendrix College. *Co-Author: Lindsay Stallcup*

**4:15
MIGRATORY BIRDS AND NUTRIENT TRANSFER
ACROSS CONTINENTS**

Sofia Varriano*, Hendrix College
Co-Author: Maureen McClung

**MOLECULAR & CELLULAR BIOLOGY
MOCKINGBIRD ROOM**

**3:00
RELATIVE GENE EXPRESSION STUDY ON
CENTRUROIDES VITTATUS: INVESTIGATING SODIUM
TOXIN GENE ACTIVITY**

Chloe Fitzgerald* and Ashlyn Tedder* Arkansas Tech University
*Co-Authors: Alyssa Kool, Aimee Bowman, Taylor Bishop, Cody
Chivers, Tsunemi Yamashita*

**3:15
COMPARISON BETWEEN ENVIRONMENTAL BACTERIA
FOUND IN THE SOIL AND THE WOLF SPIDER, RABIDOSA
RABIDA MICROBIOME USING 16S rRNA SEQUENCING
ANALYSIS**

Brandon Hogland*, Harding University. *Co-Author: Ryan Stork*

**3:30
PRODUCTION OF A PRENYLATED STILBENOID IN
MUSCADINE GRAPE HAIRY ROOTS EXPRESSING A
PRENYLTRANSFERASE GENE FROM PEANUT**

Mohammad Fazle Azim**, Arkansas State University

**3:45
GENETIC MODIFICATION OF SWITCHGRASS CELL
WALL FOR IMPROVED BIOMASS PROCESSABILITY**

Neha Verma**, Arkansas State University
Co-Author: Jianfeng Xu

**4:00
USING PROTEOMICS TO INVESTIGATE MICROBIAL
ACID TOLERANCE RESPONSE**

Newton Hilliard, Arkansas Tech University
Co-Authors: Alan J. Tackett, Kirk L. West

**4:15
MOLECULAR ADAPTATION OF MYOGLOBIN PROTEINS
IN DEEP-DIVING CETACEANS**

David McClellan, University of Arkansas - Fort Smith

**TERRESTRIAL & WILDLIFE BIOLOGY
WHITE RIVER ROOM**

**3:00
DISTURBANCE OF WINTERING WATERFOWL BY
TRAFFIC NOISE**

John Veon*, Hendrix College

**3:15
NEW RECORDS OF DISTRIBUTION OF DRACUNCULUS
SP. INFECTING RIVER OTTERS (LONTRA CANADENSIS)
IN ARKANSAS**

Heather May, Henderson State University
Co-Author: Renn Tumilson

**3:30
WILD GAME HARVEST AND EFFECTS ON DIET-
RELATED CO2 EMISSIONS IN THE U.S.**

Nathan Taylor*, Hendrix College. *Co-Author: Jamie Johnson*

**3:45
INDIANA BAT OCCUPANCY ESTIMATES OF BUFFALO
NATIONAL RIVER USING A MULTI-STATE OCCUPANCY
MODEL**

James Gore**, Arkansas State University

**4:00
NEW RECORDS OF THE AMERICAN BADGER (TAXIDEA
TAXUS) IN ARKANSAS, WITH AN UPDATED
DISTRIBUTION MAP**

Renn Tumilson, Henderson State University
Co-Author: Blake Sasse

**4:15
INCIDENTAL CAPTURES OF PLAINS SPOTTED SKUNKS
(SPILOGALE PUTORIUS INTERRUPTA) BY ARKANSAS
TRAPPERS, 2012-2017**

David Sasse, Arkansas Game & Fish Commission

**MATH, PHYSICS & COMPUTER SCIENCE
ARKANSAS RIVER ROOM**

**3:00
MATHEMATICAL MODELING OF A ROD-BEAM SYSTEM**

Zach Rail*, Arkansas State University

Co-Author: Jeongho Ahn

**3:15
WAVE PROFILE FOR CURRENT BEARING LIGHTNING
RETURN STROKES**

Baylee Landers*, Arkansas Tech University
Co-Author: Ali Alzhrani

**3:30
AN INTERACTING MODEL BETWEEN DARK ENERGY
AND DARK MATTER**

Yosuke Kitakaze*, Arkansas Tech University
Co-Author: Jesse Griffiths

**3:45
VERIFICATION AND VALIDATION FOR TURBULENT
MIXING SIMULATIONS**

Arkansas Academy of Science Meeting Program

Tulin Kaman, University of Arkansas

**4:00
NUTRIENT CONCENTRATIONS IN BIG CREEK
CORRELATE TO CAFO PRESENCE**

David Peterson, University of Central Arkansas

**4:15
EFFICACY OF SUPPLEMENTAL INSTRUCTION ON
ALGEBRA AND CALCULUS-BASED PHYSICS TEACHING-
LEARNING PROCESSES**

Puskar Chapagain, Southern Arkansas University

Co-Authors: Lavana J. Kindle, Dipak Rimal

ORAL SESSIONS: SATURDAY 8:00-10:15

**GENERAL BIOLOGY
MOCKINGBIRD ROOM**

**8:30
GENE FLOW AND GENETIC STRUCTURE OF TWO OF
ARKANSAS'S RAREST DARTER SPECIES (*TELEOSTEI-
PERCIDAE*), THE ARKANSAS DARTER, *ETHEOSTOMA
CRAGINI*, AND THE LEAST DARTER, *E. MICROPERCA***

Brian Wagner, Arkansas Game & Fish Commission

Co-Authors: Robert Wood, Justin Baker

**8:45
DISTRIBUTION OF *CAMPOSTOMA SPADICEUM* IN
SOUTHERN ARKANSAS**

Renn Tummlison, Henderson State University

Co-Author: Henry Robison

**9:00
NOTES ON TARANTULA (*APHONOPELMA HENTZI*)
REPRODUCTION IN MISSOURI**

David Jamieson, Crowder College

Co-Author: Austin Jones

**9:15
DISTAL UROGENITAL ANATOMY IN MALE SOUTHERN
COAL SKINKS, *PLESTIODON ANTHRACINUS PLUVIALIS*
(REPTILIA: SCINCIDAE)**

Stan Trauth, Arkansas State University

Co-Author: Kevin Gribbin

**9:30
EARLY SEASONS PRIMENESS IN ARKANSAS RACCOON
PELTS**

David Sasse, Arkansas Game & Fish Commission

**9:45
AVIAN FRUGIVORY IN A FRUITING MULBERRY TREE
(*MORUS* SPP.) IN ARKANSAS**

Jack Jackson, University of Arkansas - Fort Smith

Co-Author: Ragupathy Kannan

**10:00
VERTEBRATE NATURAL HISTORY NOTES FROM
ARKANSAS, 2018**

Renn Tummlison, Henderson State University

Co-Authors: Blake Sasse, Henry Robison, Matt Connior, Chris McAllister, Kelly Jobe, Matthew Anderson

**10:15
NEW RECORDS OF DISTRIBUTION OF *DRACUNCULUS
SP.* INFECTING RIVER OTTERS (*LONTRA CANADENSIS*)
IN ARKANSAS**

Heather May, Henderson State University

Co-Authors: Allison Surf, Renn Tummlison

**CHEMISTRY & GEOSCIENCES
WHITE RIVER ROOM**

**8:30
BOND VALENCE - LENGTH RELATIONSHIPS AND
ORBITAL EXPONENTS FOR HYDROGEN THROUGH
FLUORINE**

Franklin Hardcastle, Arkansas Tech University

**8:45
INHIBITION OF CYSTINE TRANSPORT LEADS TO
HUMAN GLIOMA GROWTH RETARDATION.**

Mariusz Gajewski, Arkansas Tech University

**9:00
UNDERSTANDING THE COMPLEXATION OF SMALL
MOLECULES WITH A MACROMOLECULE**

Rajib Choudhury, Arkansas Tech University

Co-Author: Vaidhyanathan Ramamurthy

**9:15
OPTIMUM MAGNETOMETER TRANSECT SPACING TO
LOCATE LEGACY OIL AND GAS WELLS**

Michael Davis, Arkansas Tech University

Co-Authors: Jason Patton, Kenyon Gowing, Hunter Vickers

**9:30
COMPARISON OF EFFECTIVE OPTICAL PROPERTIES
OF TWO-COMPONENT INTERNALLY MIXED
AEROSOLS USING VARIOUS MIXING RULES**

Kristin Dooley, University of Central Arkansas

Co-Author: Jessica DeYoung

**ENGINEERING & COMPUTER SCIENCE
ARKANSAS RIVER ROOM**

**8:30
STEPS TOWARD MEASURING WORLD SPACE
EXPLORATION ACTIVITY**

Richard Segall, Arkansas State University

Co-Authors: Ronithkumareddy Duggirala, Venkat Kodali, Daniel Berleant, Hyacinthe Aboudja

**8:45
DEEP LEARNING-BASED FRAMEWORK FOR FMRI
AUTISM IMAGE CLASSIFICATION**

Xin Yang, Southern Arkansas University

Co-Authors: Ning Zhang, Saman Sarraf

**9:00
RAM PUMP, AN ENERGY INDEPENDENT SOLUTION TO**

Arkansas Academy of Science Meeting Program

IMPROVE WATER ACCESSIBILITY TO UNDERDEVELOPED INHABITANTS IN THE WORLD – A PERFORMANCE IMPROVEMENT STUDY

Ashokkumar Sharma, University of Arkansas at Little Rock Co-Authors: Srikanth Pidugu, Shashank Khaire, Swaminadham Midturi

9:15

APPLICATIONS OF THEORETICAL ADVANCES IN THE OPTICAL ENERGYMOMENTUM DEBATE: INVISIBILITY CLOAKS, TRACTOR BEAMS, AND REVERSED RADIATION PRESSURE

Brandon Kemp, Arkansas State University
Co-Author: *Cheyenne Sheppard*

9:30

THE ELECTRODYNAMICS OF KINETIC, CANONICAL, AND HIDDEN SYSTEMS UNDER RELATIVISTIC MOTION

Cheyenne Sheppard, Arkansas State University
Co-Author: *Brandon Kemp*

9:45

INVESTIGATION OF ACOUSTIC-BASED CRACK DETECTION IN PVC PIPES

Muhammad Safeer Khan, Arkansas Tech University

10:00

A STUDY OF M AND MDYN MASSES AT THE DIFFERENT OF THE DYNAMICAL PARAMETERS OF THE SPIRAL HOST GALAXIES

Ismaeel Al-Baidhany, Al-Mustansaryah University Co-Authors: *Sami Salman Chiad, Nadir Fadhil Habubi, Khalid Haneen Abass, Ehssan S. Hassan, Mohamed Odda Dawod, Wasmaa Jabbar*

10:15

OPTICAL PROPERTIES AND DISPERSION PARAMETERS OF PMMA-MnCl₂

Sami Chiad, Al-Mustansaryah University
Co-Authors: *Nadir Fadhil Habubi, Khalid Haneen Abass, Ismaeel Al-Baidhany, Ehssan S. Hassan, Mohamed Odda Dawod, Wasmaa Jabbar*

**PARASITOLOGY
BLACK RIVER ROOM**

9:30

PARASITES OF THE SPOTTED SUCKER, *MINYTREMA MELANOPS* (CYPRINIFORMES: CATOSTOMIDAE) FROM ARKANSAS AND OKLAHOMA

Chris McAllister, Eastern Oklahoma State College-Idabel
Co-Authors: *D.W. Cloutman, A. Choudhury, T. Scholz, S.E. Trauth, T.J. Fayton, and H.W. Robison*

9:45

PREVALENCE AS A PREDICTOR OF OTHER HELMINTH POPULATION DESCRIPTORS (MEAN, STANDARD DEVIATION, MAXIMUM NUMBER) IS RELATIVELY INACCURATE AT HIGH PARASITE DENSITIES IN THE HOSTS.

James Daly Sr., University of Arkansas for Medical Sciences (retired)

10:00

ADDITIONAL RECORDS OF ACANTHOCEPHALAN PARASITES FROM ARKANSAS FISHES, WITH NEW RECORDS FROM MISSOURI FISHES

Chris McAllister, Eastern Oklahoma State College-Idabel
Co-Authors: *M.A. Barger, and H.W. Robison*

10:15

PROPORTIONALITY OF STATISTICAL PARAMETERS FOR HELMINTH PARASITE POPULATIONS IN SMALLMOUTH BASS (*MICROPTERUS DOLOMEIU*) FROM THE BUFFALO NATIONAL RIVER IN ARKANSAS

James Daly Sr., University of Arkansas for Medical Sciences (retired)

POSTER PRESENTATIONS

BIOLOGICAL SCIENCES POSTER PRESENTATIONS

1 GENERATION AND ANALYSIS OF CHROMOSOMAL GENE DELETION MUTANTS OF TWO PUTATIVE THIOSULFATE SULFURTRANSFERASES IN *MYCOBACTERIUM SMEGMATIS*

Jasleen Saini**, University of Arkansas (Co-Author: *Ravi D. Barabote*)

2 INVESTIGATION OF THE FUNCTION OF A PUTATIVE CYSTEINE SYNTHASE HOMOLOG IN *MYCOBACTERIUM SMEGMATIS* USING UNMARKED GENE DELETION MUTATION

Saroj Mahato**, University of Arkansas, (Co-Author: *Ravi D. Barabote*)

3 THE EFFECT OF SLCO TRANSPORTER POLYMORPHISMS ON PROSTAGLANDIN LEVELS IN HEALTHY POSTMENOPAUSAL VOLUNTEERS

Kelsey Martin**, Harding University
Co-Authors: *Nimmy E. Isaac, Landry K. Kamdem*

4 CHARACTERIZATION OF BIOMASS SMOKE PARTICLES VIA SCANNING ELECTRON MICROSCOPY AND ENERGY-DISPERSIVE X-RAY SPECTROSCOPY

Mason Rostollan**, University of Central Arkansas

5 MOLECULAR MECHANISMS UNDERLYING THE HIGHER BIOMASS AND ABIOTIC STRESS TOLERANCE PHENOTYPE OF *ARABIDOPSIS MIOX* OVEREXPRESSERS

Nirman Nepal**, Arkansas State University
Co-Authors: *Jessica P. Yactayo Chang, Lucia M. Acosta-Gamboa, Karina Medina-Jimenez, Mario A. Arteaga-Vazquez, Argelia Lorence*

6 EXPOSURE TO CARBON BLACK NANOPARTICLES DURING LARVAL DEVELOPMENT AFFECTS ADULT PHYSIOLOGICAL STRESS TOLERANCE IN WILD TYPE ISOLATES OF *CAENORHABDITIS ELEGANS*

Brenna Walters*, Harding University
Co-Authors: *Gavin Traber, Riley Jones, Kasey Boatwright, Jared Cooper, Emme Copeland, Coleman Dennis, Brandon Gates, Shelby Hamilton, Jon Aaron Howell, Caroline Minton, Joe Tolar, Jo Goy*

Arkansas Academy of Science Meeting Program

- 7 **A RETROSPECTIVE MULTISTATE ANALYSIS OF INFLUENZA PANDEMIC DEATHS**
Spencer Long*, University of Central Arkansas
Co-Author: Ashton Purtle
- 8 **TRANSIENT RECEPTOR POTENTIAL CHANNEL 3 AND ITS EFFECTS ON SYSTEMIC BLOOD PRESSURE REGULATION IN DISEASED VERSUS HEALTHY MESENTERIC ARTERIES**
Ryan Williams, Arkansas Tech University
- 9 **DETECTION OF TEN ANTINEOPLASTIC DRUGS IN A CLINICAL SETTING BY WIPE TEST AND LC-MS/MS ANALYSIS**
Spencer Sanson**, University of Arkansas for Medical Sciences. *Co-Author: Howard Hendrickson*
- 10 **A COMPARISON OF JAPANESE AND AMERICAN CHILDREN'S DIETS, AND A LITERATURE REVIEW OF DIET AND DISEASE.**
Malynn McKay, Arkansas Tech University
- 11 **THE EFFECT OF GREEN TEA EXTRACT ON *DAPHNIA MAGNA***
Antoinette Davis*, Southern Arkansas University
- 12 **GENETIC ENGINEERING OF THE Mad LOCUS USING CRISPR/Cas-9 and Phi-C31 RECOMBINATION**
Jeremy Brown*, Southern Arkansas University
- 13 **IDENTIFY MICROBES IN DRINKING WATER USING PCR**
Jeremy Brown*, Southern Arkansas University
- 14 **HOUSE FINCH (*HAEMORHOUS MEXICANUS*) NESTING IN DECEMBER IN ARKANSAS**
Kimberly Smith, University of Arkansas
- 15 **OBSERVATIONS OF TOWNSEND'S SOLITAIRES (*MYADESTES TOWNSENDI*) ON MOUNT MAGAZINE IN LOGAN COUNTY, ARKANSAS**
Kimberly Smith, University of Arkansas
- 16 **SECOND RECORD OF THE GRAY-HEADED JUNCO (*JUNCO HYEMALIS CANICEPS*) IN ARKANSAS**
Kimberly Smith, University of Arkansas
- 17 **DOES FREQUENTLY VISITING A BLUEBIRD NEST INCREASE PREDATION RISK?**
Amanda Trusty*, Arkansas State University
Co-Author: Virginie Rolland
- 18 **DOES AXLE GREASE EFFECTIVELY PROTECT BLUEBIRD NESTS FROM PREDATORS?**
Michael Trusty*, Arkansas State University *Co-Author: Virginie Rolland*
- 19 **DEVELOPING MICROSATELLITE MARKERS FOR GENETIC IDENTIFICATION OF SONGBIRDS**
Edgar Sanchez*, Arkansas Tech University
Co-Author: Douglas Barron
- 20 **WINTER SURVEYS OF *COTINUS OBOVATUS* (AMERICAN SMOKETREE) IN THE OZARK MOUNTAINS**
Gary Graves, Smithsonian Institution
- 21 **HIGH-THROUGHPUT PLANT PHENOTYPING AT THE A-STATE PHENOMICS FACILITY**
Zac Campbell, Arkansas State University
Co-Author: Nirmal Nepal
- 22 **NOVEL NUCLEAR AND PLASTID LOCI AND THEIR UTILITY FOR INFERRING RELATIONSHIPS AMONG SPECIES OF THE GENUS *STREPTANTHUS* (BRASSICACEAE) FOUND IN ARKANSAS AND ADJOINING STATES.**
Leila Henning, University of Arkansas at Monticello
Co-Authors: Freddie Rivera, Brent Baker, Karen Fawley, Marvin Fawley
- 23 **THE HUNT FOR BIGLEAF**
Jennifer Bryant*, Arkansas State University
Co-Author: Travis Marsico
- 24 **ASSESSING MITIGATIVE PROPERTIES OF VEGETATION IN NORTHEAST ARKANSAS AGRICULTURAL DITCHES USING BIOTIC AND ABIOTIC MEASURES**
Emma Martin**, Arkansas State University
- 25 **A PRELIMINARY CHECKLIST OF THE STONEFLIES (ARTHROPODA: INSECTA: PLECOPTERA) OF ARKANSAS**
Chris McAllister, Eastern Oklahoma State College-Idabel *Co-Author: H.W. Robison*
- 26 **ADDITIONAL COUNTY RECORDS OF INVERTEBRATES FROM ARKANSAS**
Chris McAllister, Eastern Oklahoma State College-Idabel
Co-Authors: C.T. McAllister, H.W. Robison, and R. Tumilson
- 27 **BIOLOGICAL AND ECOSYSTEM-LEVEL CHANGES FROM THE ADDITION OF RESERVOIRS TO HEADWATER STREAMS**
Brian Staley, University of Central Arkansas
Co-Author: Maureen McClung
- 28 **BIODIVERSITY OF HYMENOPTERA ACROSS SKY ISLANDS OF ARKANSAS**
Sierra Hubbard*, Hendrix College
Co-Authors: Reynol Rodriguez, Allison F. Monroe, Maureen R. McClung, Matthew D. Moran, Oliver I. Kuhns, Michael W. Gates
- 29 **ENERGETIC COST OF GIRDLING IN THE NOTODONTID CATERPILLAR, *OEDEMASIA LEPTINOIDES***
Brianna Trejo**, University of Central Arkansas
Co-Author: David Dussourd
- 30 **ORGANOCHLORIDE PESTICIDES PRESENT IN ANIMAL FUR, SOIL, AND STREAMBED IN AN AGRICULTURAL REGION OF SOUTHEASTERN ARKANSAS**
John Hunt, University of Arkansas at Monticello

Arkansas Academy of Science Meeting Program

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31 SOUTHEASTERN MYOTIS AND RAFINESQUE'S BIGEARED BATS SWITCH THEIR ROOSTING HABITS SEASONALLY IN ARKANSAS BOTTOMLANDS

Stacy Scherman**, Arkansas State University
Co-Authors: Tom Risch, Virginie Rolland

32 SERIAL FOUNDER EFFECTS IN CROTAPHYTUS COLLARIS: THE INFLUENCE OF GENETIC DRIFT ON PHENOTYPIC DIVERSIFICATION

Andrew Feltmann, University of Central Arkansas
Co-Author: Matthew Gifford

33 PHYLOGEOGRAPHIC ANALYSES SUGGEST CRYPTIC DIVERSITY WITHIN THE BLUNTNODE DARTER, *ETHEOSTOMA CHLOROSOMA*

Hilary Canada*, Arkansas State University

CHEMISTRY POSTER PRESENTATIONS

34 EFFECTS OF NIR FLUOROPHORES IN SELECTIVE BIOLOGICAL SCENARIOS

Ben Quattlebaum*, Arkansas Tech University
Co-Author: Hope Parker

35 THE PURIFICATION OF SODIUM CHANNEL TOXIN FROM *CENTRUROIDES VITTATUS*

Gray Orman*, University of Arkansas
Co-Authors: Srinivas Jayanthi, Ravi Kumar Gundampati, Tsunami Yamashita, T.K.S. Kumar

36 TESTING THE RE-USABILITY OF DEFINED MEDIUM FOR AN EFFECTIVE INCORPORATION OF UNUSED 15N LABEL INTO RECOMBINANT PROTEINS

Ryan Coleman*, University of Arkansas

37 APPLICATION OF ROMP CATALYSTS TO HOMO-COUPLING

Harper Grimsley, University of Arkansas
Co-Author: Stefan M. Kilyanek

38 ISOLATING A FAT MOBILIZING SUBSTANCE FROM A FASTING INDIVIDUAL

Sydnye Shuttleworth, Harding University
Co-Author: Dennis Province

39 IRON REDUCES MITOCHONDRIAL DNA DAMAGE INDUCED BY MITOCHONDRIAL REACTIVE OXYGEN SPECIES IN HEPG2 CELLS

Conner Breen*, Hendrix College
Co-Author: Andres Caro

40 NOVEL PEPTOIDS AS ANTIMICROBIAL AGENTS

Eliza Hanson*, John Brown University
Co-Author: Francis Umesiri

41 EXTRACTION AND QUANTITATION OF HETEROCYCLIC AROMATIC AMINES FROM COOKED BACON USING SOLID PHASE

EXTRACTION AND LIQUID CHROMATOGRAPHY/TANDEM MASS SPECTROMETRY

Emily Joy Seminara*, Hendrix College
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42 THE ISOLATION AND CHARACTERIZATION OF A RECOMBINANT FIBROBLAST GROWTH FACTOR-1

Kylie Cleavenger*, University of Arkansas
Co-Authors: Thallapuram Krishnaswamy Suresh Kamar, Ravi Kumar Gundampati

43 ANALYZING COMPOSITION OF PLASTER FROM TEL BETH-SHEMESH ARCHAEOLOGICAL SITE

Peyton Munch*, Harding University

44 A NEW AND SIMPLE METHOD FOR THE PURIFICATION OF RECOMBINANT PROTEINS FROM INCLUSION BODIES

Pooja Lukhi*, University of Arkansas
Co-Author: Musaab Al-Ameer

45 MITOCHONDRIAL CYP2E1 ACTIVATES ANTIOXIDANT AND MITOCHONDRIAL BIOGENESIS SIGNALING IN HEPATOCYTES.

Trevor Loew*, Hendrix College. Co-Author: Andres Caro

46 PREPARATION OF 3-PHENYL-2-PROPENOIC ACID USING UNDERGRADUATE ORGANIC CHEMISTRY LAB TECHNIQUES

Kaleb Reid*, Harding University

47 MORPHOLOGICAL INVESTIGATION OF MAMMALIAN CANCER CELLS

Ayesha Siddiqua**, Arkansas State University

48 CHARACTERIZATION OF GOLDENSEAL PRODUCT QUALITY BY DISSOLUTION STUDIES

Alexander Rothenberger**, University of Arkansas for Medical Sciences. Co-Author: Howard Hendrickson

49 DEVELOPMENT AND VALIDATION OF AN LC-MS/MS BASED METHOD TO QUANTITATE OCTREOTIDE IN MOUSE PLASMA

Sarah Phillips, University of Arkansas for Medical Sciences. Co-Authors: Qiang Fu, John Seng, Martin Hauer – Jensen, Howard P. Hendrickson

50 STRUCTURE, COMPOSITION, AND OLIGOSACCHARIDE PROFILES FOR HEMICELLULOSIC POLYSACCHARIDES ISOLATED FROM RICE BRAN FIBER

Divya Kandanoor**, Arkansas State University
Co-Author: Brett Savary

51 IDENTIFICATION OF A NOVEL GLUCAN CROSSLINK TO FERULOYLATED ARABINOXYLAN IN RICE BRAN FIBER

Kan Takahashi**, Arkansas State University
Co-Author: Brett Savary

ENGINEERING POSTER PRESENTATIONS

52 MAINTAINING QUALITY OF ROUGH RICE DRIED IN A FLUIDIZED BED BY ADDING HOLD-UP PERIODS

Kaushik Luthra**, University of Arkansas
Co-Author: Sammy Sadaka

53 SCALING RESISTANCE OF INDUSTRY WASTE MODIFIED CONCRETE EXPOSED TO DEICING CHEMICALS

Kazi Tamzidul Islam**, Arkansas State University
Co-Author: Zahid Hossain

54 RAYLEIGH SCATTERING IN MULTIPLE NANOPARTICLE SYSTEMS: A STUDY OF THE SCATTERED MAGNETIC FIELDS

Md Saber Nazim**, Arkansas State University
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55 QUANTIFICATION OF MOISTURE EFFECTS ON ADHESION AND MODULUS PROPERTIES OF PAVING ASPHALTS

Summon Roy**, Arkansas State University
Co-Author: Zahid Hossain

56 ANOMALOUS ELECTROSTATIC NATURE OF CHARGED PARTICLES: AN APPROACH TOWARDS STABLE EQUILIBRIUM IN INVERTED SYSTEMS

Tamal Sarkar**, Arkansas State University

57 DEVELOPMENT OF A PEDOT:PSS BUFFER FILM FOR AN ORGANIC SOLAR CELL

Obande Ikwuyum*, Arkansas Tech University
Co-Author: Matthew Young

GEOSCIENCE POSTER PRESENTATIONS

58 VARIATION IN SOIL MOISTURE LEVELS IN NO-TILL, COVER CROP, AND CONVENTIONAL TILLAGE SYSTEMS IN NE ARKANSAS COTTON

Haylee Campbell*, Arkansas State University
Co-Authors: Kyle Wilson, Amanda Mann, Michele Reba, Tina Gray Teague

59 QUALITATIVE ANALYSIS OF PM2.5 ORGANIC COMPOUNDS IN CONWAY, ARKANSAS

Megan Cassingham*, Hendrix College
Co-Author: Dana Henry

60 QUANTIFICATION OF SOLUBLE IONS IN ATMOSPHERIC PARTICULATE MATTER USING ION CHROMATOGRAPHY

Ryan Tumminello*, Hendrix College
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PHYSICS POSTER PRESENTATIONS

61. GAMMA-GAMMA ANGULAR CORRELATION

Sonja Wagner*, University of Central Arkansas
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62 X-RAY FLUORESCENCE

Timothy Brown* & Jealen Greer*, University of Central Arkansas.
Co-Author: Rahul Mehta

63 DEVELOPMENT AND TESTING OF A SCIENTIFIC PAYLOAD AND GROUND-BASED TRACKING SYSTEM FOR HIGH-ALTITUDE BALLOONS.

Trae Staggers*, Arkansas State University
Co-Author: Jackson Mixon

64 DEVELOPMENT AND TESTING OF A SCIENTIFIC PAYLOAD AND GROUND-BASED TRACKING SYSTEM FOR HIGH-ALTITUDE BALLOONS.

Jackson Mixon*, Arkansas State University

65 GAMMA-GAMMA ANGULAR CORRELATION

Jake Bass*, University of Central Arkansas
Co-Author: Rahul Mehta

66 DEVELOPMENT OF AN ACOUSTIC SCANNER

Nicholas Scoles*, University of Central Arkansas

67 GENERATION OF GENERALIZED GAUSSIAN BEAMS VIA A SPATIAL LIGHT MODULATOR

Samantha Dix*, Arkansas Tech University
Co-Author: Jessica Young

68 EFFECT OF SIMULATED MICROGRAVITY ON RADIATION-INDUCED ENDOTHELIAL DYSFUNCTION MARKERS

Yassamine Ghazzali*, Southern Arkansas University
Co-Authors: Abdel Bachri, Rupak Pathak, Marjan Boerman, Martin Hauer – Jensen

69 STRATOSPHERIC BALLOONING RGB SYSTEM FOR LIDAR MEASUREMENTS

Patrick Tribbett*, Arkansas State University
Co-Author: Ross Carroll

70 RUTHERFORD BACKSCATTERING SPECTROMETRY

Paul Niyonkuru*, University of Central Arkansas

71 ANALYZING THE CHANGEOVER FROM A MACROSCOPIC SYSTEM TO A NANOSYSTEM BY INVESTIGATING THE MOVING BOUNDARY BETWEEN TWO PHASES

Paul Niyonkuru*, University of Central Arkansas