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FEATURED GUEST SPEAKER



SHIFTING BASELINES, LOCAL IMPACTS AND GLOBAL CHANGE: WHAT WILL THE OCEANS BE LIKE IN 2025?

Dr. Jeremy Bradford Cook Jackson

Jeremy Jackson is the William E. and Mary B. Ritter Professor of Oceanography and Director of the Center for Marine Biodiversity and Conservation at the Scripps Institution of Oceanography in La Jolla, California. He is also a Senior Scientist Emeritus at the Smithsonian Tropical Research Institute in the Republic of Panama. Dr. Jackson is the author of more than 100 scientific publications and five books. His current research includes the long-term impacts of human activities on the oceans, coral reef ecology and the ecological and evolutionary consequences of the gradual formation of the Isthmus of Panama. Dr. Jackson is a Fellow of the American Academy of Arts and Sciences and the American Association for the Advancement of Science. He is the recipient of numerous prizes and honorary degrees, including the Secretary's Gold Medal for Exceptional Service of the Smithsonian Institution in 1997, the UCSD Chancellor's Award for Excellence in Science and Engineering in 2002 and the International Award for Research in Ecology and Conservation Biology of the BBVA Foundation in 2007. Dr. Jackson's work on overfishing was chosen by *Discover* magazine as the outstanding environmental achievement of 2001. He has served on committees and boards of the World Wildlife Fund US, National Research Council, National Center for Ecological Analysis and Synthesis, Yale University Institute of Biospheric Sciences and the Science Commission of the Smithsonian Institution.

This presentation was made possible by generous support from the Matte Lock Ellis College of Arts and Sciences Margin of Excellence Fund, with additional funding from the HSU Undergraduate Research Program and from the HSU Departments of Biology, Chemistry and Physics.

Arkansas Academy of Science

SECTION PROGRAMS
ORAL PRESENTATIONS
(Speakers Underlined)

Session I: Friday 11 April, 1:00 – 2:45 pm

Physics I (Mostafa Hemmati, ATU) REY 127

1:00

DESIGN OF A ROBOTIC ARM FOR PAIN THRESHOLD MEASUREMENTS IN PRE-DIABETIC RATS. Sharon Jones¹, Azida Walker¹ and Maxim Dobretsov². ¹ Department of Physics and Astronomy, University of Central Arkansas, Conway, AR, 72034; ² Department of Anesthesiology, University of Arkansas for Medical Sciences, Little Rock, AR, 72205

1:15

BREAKDOWN WAVES WITH A CURRENT BEHIND THE WAVE FRONT PROPAGATING INTO A NEUTRAL MEDIUM. John King, Sarah Norman and Mostafa Hemmati, Department of Physical Science, Arkansas Tech University, Russellville, AR 72801

1:30

ELECTRON SHOCK WAVES WITH A CURRENT BEHIND THE SHOCK FRONT. Sarah Norman and Mostafa Hemmati; Department of Physical Science, Arkansas Tech University, Russellville, AR 72801

1:45

SYNTHESIS AND CHARACTERIZATION OF HYDROXYAPATITE BIOMATERIALS. Jerakaycia D. Boman,* Franklin D. Hardcastle** and Alexandru S. Biris+, *Department of Physical Sciences, Arkansas Tech University, Russellville, AR 72801; +University of Arkansas at Little Rock, UALR Center of Nanotechnology, Graduate Institute of Technology, 2801 S. University Ave., Little Rock, Arkansas 72204

2:00

INTEGRATED ELECTRODYNAMIC SCREEN-PHOTOVOLTAIC CELL SYSTEM: A POWER MANAGEMENT APPROACH. Jacob P. Book, Jason R. Robison, R. Sharma, J. Zhang, M. K. Mazumder; University of Arkansas at Little Rock, 2801 S. University Ave., Little Rock, AR 72204

2:15

CHARACTERIZATION OF SIZE AND CHARGE OF SUB-MICRON PARTICLES. J.W. Stark, M.K. Mazumder, J. Zhang, R. Sharma, and A. J. Adams; University of Arkansas at Little Rock, 2801 S. University Ave., Little Rock, AR 72204

2:30

PHOTOACTIVITY OF TITANIA (TiO₂) NANOTUBES AS WATER SPLITTING CATALYSTS. Ryan J. Snead,* Landon B. Hight,* Franklin D. Hardcastle,** Rajesh Sharma,* and Alexandru S. Biris*, *Department of Physical Sciences, Arkansas Tech University, Russellville, AR 72801 +University of Arkansas at Little Rock, UALR Center of Nanotechnology, Graduate Institute of Technology, 2801 S. University Ave., Little Rock, Arkansas 72204

Chemistry I (Wray Jones, HSU) REY 322

1:00

FURTHER OPTIMIZATION AND CHARACTERIZATION OF CHEMICAL BATH- DEPOSITED OF BISMUTH SULFIDE THIN FILMS. Michael Sattler, Dr. Robert Engelken, Steven Minor, and Matthew Pruitt, Arkansas State University Optoelectronic Materials Research Laboratory, and Environmental Science Graduate Program, P.O. Box 1740, State University, AR 72467

1:15

LIQUID PHASE SULFIDIZATION OF METALS INTO METAL SULFIDES. Matthew Pruitt, Robert Engelken, Michael Sattler, and Paul Minor, College of Engineering and Environmental Sciences Program-

Arkansas State University, P.O. Box 1740, State University, AR 72467; Tansel Karabacak and Hye-Won Seo, Department of Applied Science and Department of Physics and Astronomy, University of Arkansas-Little Rock, 2801 S. University Ave., Little Rock, AR 72204

1:30

ORGANIC CHEMICAL BATH DEPOSITION OF INDIUM (III) SULFIDE. Paul Minor*, Robert Engelken, Michael Sattler, and Matthew Pruitt, College of Engineering and Environmental Sciences Program-Arkansas State University; and Tansel Karabacak and Hye-Won Seo, Department of Applied Science and Department of Physics and Astronomy, University of Arkansas-Little Rock

1:45

RAMAN SPECTROSCOPY OF TITANIA (TiO₂) NANOTUBES FOR BIOMEDICAL APPLICATIONS. Landon B. Hight,* Ryan J. Snead,* Franklin D. Hardcastle**Rajesh Sharma,* and Alexandru S. Biris*, *Department of Physical Sciences, Arkansas Tech University, Russellville, AR 72801

+University of Arkansas at Little Rock, UALR Center of Nanotechnology, Graduate Institute of Technology, 2801 S. University Ave., Little Rock, Arkansas 72204

2:00

DETERMINATION OF CALCIUM AND PHOSPHORUS IN HYDROXYAPATITE BIOMATERIALS USING WET-CHEMICAL ANALYSIS TECHNIQUES. Amanda Stolarz and Franklin D. Hardcastle; Department of Physical Sciences, Arkansas Tech University, Russellville, AR 72801

2:15

DETERMINATION OF CALCIUM AND PHOSPHORUS IN HYDROXYAPATITE BIOMATERIALS USING ATOMIC ABSORPTION AND X-RAY FLUORESCENCE SPECTROSCOPIES. Cody Wright and Franklin D. Hardcastle; Department of Physical Sciences, Arkansas Tech University, Russellville, AR 72801

2:30

ELECTRON BEAM WRITING OF CRYSTALLINE NANODOTS FOR NEXT GENERATION DEVICES. ¹Benjamin Newton, ¹Dr. Mansour Mortazavi, ²Dr. Husam Abu-Safe, ²Dr. Hameed Naseem, ¹University of Arkansas Pine Bluff, Chemistry and Physics Dept, 1200 N. University, Pine Bluff, AR 71601, ²University of Arkansas Fayetteville, Electrical Engineering Dept. Fayetteville, AR 72701

Biomedicine I (Allen Leible, HSU) REY 120A

1:00

PRODUCT INHIBITION MAY ALTER WARFARIN METABOLISM BY CYP1A2, CYP2C9, AND CYP3A4. Shane Sullivan¹, Ramanagouda RamanagoudrBhojappa¹, Ashley Brown¹, Jeff Moran², and Grover P. Miller¹; ¹Dept of Biochemistry and Molecular Biology; Univ of Ark for Med Sciences Little Rock 72205; ²Arkansas Department of Health and Human Services, Division of Health Arkansas Public Health Laboratory, Little Rock, AR 72211

1:15

THE CHRONICITY OF GIARDIA LAMBLIA IN ARKANSAS (1988-1997) IN DIFFERENT AGE GROUPS. Bruce A. Dye¹, James N. Pasley² and James J. Daly Sr.³, Departments of Pharmacology and Toxicology¹, Physiology and Biophysics², and Microbiology and Immunology³ University of Arkansas for Medical Sciences, 4301 W. Markham, Little Rock, AR 72205

Arkansas Academy of Science

- 1:30**
USING MASS SPECTROMETRY TO ELUCIDATE THE STRUCTURE OF BACTERIOPHAGE T4 HELICASE DDA. Lauren P. Blair, Christopher R. Warthen, Alan J. Tackett, and Kevin D. Raney, Department of Biochemistry and Molecular Biology, University of Arkansas for Medical Sciences, 4301 W. Markham St., Slot 516, Little Rock, AR 72205
- 1:45**
PROCESSED MRNA, REGULATED BY P38 KINASE AND ATF/CREB PROTEINS, IS REQUIRED FOR HOTSPOT MEIOTIC RECOMBINATION. Jacy L. Wagon, Mari K. Davidson, and Wayne P. Wahls, Department of Biochemistry and Molecular Biology, University of Arkansas for Medical Sciences, Little Rock, AR 72205
- 2:00**
EPISTATIC ANALYSIS OF THE ROLE OF RNA INTERFERENCE ENZYMES IN HOMOLOGOUS RECOMBINATION. Lindsay M. Bradshaw, Wayne P. Wahls, and Mari K. Davidson, Department of Biochemistry and Molecular Biology, UAMS, Little Rock, AR 72205
- 2:15**
ANGIOGRAPHIC VARIATIONS IN THE CIRCLE OF WILLIS IN THE NEW ZEALAND WHITE RABBIT. C. Brian Caldwell¹, Rene Flores², John Lowery³, and William C. Culp², ¹College of Medicine, University of Arkansas for Medical Sciences, Little Rock, AR 72205, ²Department of Radiology, University of Arkansas for Medical Sciences, Little Rock, AR 72205, ³Department of Laboratory Animal Medicine, University of Arkansas for Medical Sciences, Little Rock, AR 72205
- 2:30**
THE RELATIONSHIP BETWEEN THE LOCATION OF CHROMOSOMAL BREAKAGE AND THE POSITIONING OF HOMOLOGOUS RECOMBINATION. Katie L. Steed and Mari K. Davidson, Department of Biochemistry and Molecular Biology, UAMS, Little Rock, AR 72205
- Botany & Aquat. Biol. (Thomas Smith, SAU) REY 222A**
- 1:00**
IDENTIFICATION OF PRICKLE DEVELOPMENT GENES IN RUBUS USING A SUBRACTIVE cDNA LIBRARY. Nathan Jones and J-D Swanson, Department of Biology, University of Central Arkansas, Conway, AR 72035
- 1:15**
GEOGRAPHIC VARIATION IN THE POLLINATION BIOLOGY OF PASSIFLORA LUTEA (PASSIFLORACEAE). Janet Lanza and Jennifer Burks Holland, Biology Department, University of Arkansas at Little Rock, 2801 South University, Little Rock, Arkansas 72204
- 1:30**
INVESTIGATING THE LINK BETWEEN TRICHOME AND PRICKLE DEVELOPMENT IN RUBUS. Alicia Kellogg and J.D. Swanson, Department of Biology, University of Central Arkansas, Conway AR 72034
- 1:45**
A CONTINUING INVESTIGATION INTO THE OCCURRENCE, ESTABLISHMENT, AND BIOLOGY OF SEVEN, NON-NATIVE, WOODY ANGIOSPERMS IN SOUTHWESTERN ARKANSAS. Nicole Freeman, Allen Leible, Joslyn Hernandez, Chris Talley, Sara Melancen, Johnathan Fuell, Michelle Larsen, and Brett E. Serviss, Department of Biology, Henderson State University, Arkadelphia, AR 71999-0001
- 2:00**
LIMNOLOGICAL ANALYSIS AND TROPHIC CHARACTERIZATION OF LAKE GREESON, ARKANSAS. Alan D. Christian, Allison M. Asher, Kevin A. Keen, and Justin L. Ward, Arkansas State University, Department of Biological Sciences, P.O. Box 599, State University, Arkansas 72467
- 2:15**
A PRELIMINARY REPORT ON THE ALGAE FROM AGRICULTURAL FIELD IN ST. FRANCIS COUNTY, ARKANSAS. Thomas Smith, Southern Arkansas University, Dept. of Biology, Magnolia, AR 71753
- 2:30**
EVALUATION OF MOISTURE CONTENT AND SPECIFIC GRAVITY VALUES OF PLANTATION GROWN EASTERN COTTONWOOD (POPULUS DELTOIDES BARTR.). Jonathan I. Hartley and David W. Patterson, Arkansas Forest Resources Center, University of Arkansas-Monticello School of Forest Resources, Monticello, AR 71656
- Session II: Friday 11 April, 3:00 – 4:15 pm**
- Physics II (Jeff Robertson, ATU) REY 127**
- 3:00**
COMPUTER SIMULATION OF ELECTRODYNAMIC SCREENS. Jason R. Robison, R. Sharma, J. Zhang, M. K. Mazumder; University of Arkansas at Little Rock
 2801 S. University Ave., Little Rock, AR 72204
- 3:15**
BALLOONSAT AND LABPRO: HIGH ALTITUDE BALLOON EXPERIMENTS FOR HIGH SCHOOL STUDENTS. Kim Mason and William V. Slaton, Department of Physics and Astronomy, University of Central Arkansas, 201 Donaghey Ave., Conway, AR 72035
- 3:30**
LI DOPED ZnO NANOWIRES GROWN BY A LOW TEMPERATURE ELECTROCHEMICAL PROCESS. Allan Thomas¹, Yuchoong Soo¹, and Jingbiao Cui¹, ¹Department of Physics and Astronomy, University of Arkansas at Little Rock, Little Rock, AR 72204
- 3:45**
THE TRANSFER FUNCTION AND SENSOR CALIBRATION. Gregory W. Lyons, Harding Box 12323 Searcy, AR 72149-2323
- 4:00**
USLI 2008 HARDING FLYING BISON ROCKET COMPETITION. Paul R. Elliott, Harding Box 11462 Searcy, AR 72149-1462
- Chemistry II (Janice O'Donnell, HSU) REY 322**
- 3:00**
A SYNTHETIC AND SPECTROSCOPIC INVESTIGATION OF THE THIOSEMICARBAZONE FROM *p*-DIMETHYLAMINOBENZALDEHYDE. Floyd Beckford, Christopher Robertson and Ryan Harness; Lyon College, 2300 Highland Road, Batesville, AR 72501
- 3:15**
TDLAS OF METHANE ISOTOPOMERS. Sarah E. Christensen, Harding Box 11164, Searcy, AR 72149-1164
- 3:30**
THE STRUCTURE OF PHOSPHATE SPECIES IN CALCIUM PHOSPHATE BIOMATERIALS BY RAMAN SPECTROSCOPY. Franklin D. Hardcastle, Department of Physical Sciences, Arkansas Tech University, Russellville, AR 72801; University of Arkansas at Little Rock, UALR Center of Nanotechnology, Graduate Institute of Technology, 2801 S. University Ave., Little Rock, Arkansas 72204
- 3:45**
RADICAL SCAVENGING ACTIVITIES OF CAFFEYOYLQUINIC ACID DERIVATIVES FROM LEAVES OF SWEETPOTATO. Joseph C. Onyilagha and Shahidul Islam, Department of Agriculture, University of Arkansas at Pine Bluff, 1200 North University Drive, Mail Slot 4913, Pine Bluff, AR 71601

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4:00

DOES NICOTINE INHIBIT ANTI-SPORE MECHANISM ACHIEVED BY GYLCOCONJUGATES. J.Parsons, J. Castleberry, and O. Tarasenko, Department of Biology, University of Arkansas at Little Rock

Vert. Zool. & Environ. Sci. (Chris Guyer, HSU) REY 120A

3:00

EFFECTS OF INDIGENOUS COMMUNITIES AND AGRICULTURE ON CORAL REEF COMPOSITION IN THE WESTERN GULF OF SAN BLAS, PANAMA. ¹April Helms, ²Michelle Dare, ³Shara Jones, and ¹James Engman. ¹Henderson State University Biology Department, P.O. Box 7520, Arkadelphia, AR 71999-0001; ²University of New Hampshire, Department of Plant Biology, 38 College Road, Spaulding Hall G28, Durham, NH 03824; ³Lewis and Clark Law School, 10015 Southwest Terwilliger Blvd., Portland, OR 97219

3:15

ACCURACY ASSESSMENT OF RECREATIONAL AND MAPPING GRADE GPS UNITS IN THREE DIFFERENT LANDSCAPES. Michael Gilbert, Jack Cross, and Robert C. Weih, Jr., School of Forestry Resources, Spatial Analysis Laboratory, University of Arkansas-Monticello, 110 University Court, Monticello, Arkansas 71656

3:30

CRETACEOUS SHARKS OF SOUTHWEST ARKANSAS. Jerrold Caskey, Dr. Leo C. Davis, Dr. Henry Robison, Dr. Thomas Smith, Department of Geology, Department of Biology, Southern Arkansas University, 100 East University, Magnolia, AR, 71754

3:45

SMALL MAMMAL COMMUNITY DYNAMICS ON A WETLAND RESTORATION SITE IN SOUTHEASTER ARKANSAS. Tiffany A. Whitsitt and Philip A. Tappe, Arkansas Forest Resources Center & School of Forest Resources, University of Arkansas at Monticello, 110 University Ct., Monticello, AR 71656

4:00

MUSSEL INVENTORY AND POPULATION STATUS OF THE FEDERALLY ENDANGERED *POTAMILUS CAPAX* (GREEN 1832) IN THE TYRONZA RIVER, ARKANSAS. Nathan J. Wentz¹, John L. Harris¹, Jerry L. Farris², and Alan Christian^{1,2} Arkansas State University, ¹Department of Biological Sciences, PO Box 599, State University, AR 72467, ²Environmental Sciences Program, PO Box 877, State University, AR 72467

Botany II (J.D. Swanson, UCA) REY 222A

3:00

A COMPARISON OF PINE HEIGHT MODELS FOR THE CROSSETT EXPERIMENTAL FOREST. Don C. Bragg, Southern Research Station, USDA Forest Service, P.O. Box 3516 UAM, Monticello, AR 71656

3:15

MANAGEMENT OF INVASIVE PLANTS ON TWO NATURAL AREAS IN SOUTHWEST ARKANSAS. Tobin Fulmer, Arkansas Natural Heritage Commission, 1500 Tower Building, 323 Center street, Little Rock, AR, 72201

3:30

AN EXPERIMENTAL TEST OF THE ROLE OF MORPHOLOGICAL PLASTICITY ON INVASIVENESS IN LONICERA VINES. Katherine Larson, Department of Biology, University of Central Arkansas, Conway, AR 72035

3:45

PITFALLS ASSOCIATED WITH ESTABLISHING SHORT ROTATION BIOFUEL PLANTATIONS. Jamie L. Schuler, Matthew Pelkki, and Chris Stuhlinger, University of Arkansas-Monticello, Monticello, AR 71656

Session III: Saturday 12 April, 8:00 – 9:15 am

Physics III (Daniel Bullock, ATU) REY 127

8:00

MULTI-WAVELENGTH REFLECTANCE AND TRANSMISSION STUDIES IN TURBID MEDIA. Al Adams and Michael Fahrenwald, Department of Physics and Astronomy, University of Arkansas at Little Rock, 2801 S. University Ave, Little Rock, AR 72204-1099

8:15

NEW ECLIPSING VARIABLE DISCOVERED IN SEXTANTS. Jeff W. Robertson, George Roberts, R. Tut Campbell, Arkansas Tech University, Department of Physical Sciences, 1701 N. Boulder, Russellville, AR 72801-2222

8:30

ON THE APPLICATION OF IMPROVEMENTS FOR PRONY'S METHOD OF SYSTEM IDENTIFICATION IN SIGNAL PROCESSING. Chih-Hao Wu, Department of Electrical Engineering, Arkansas Tech University, 1815 Coliseum Drive, Russellville, AR 72801

8:45

EPITAXIALLY GROWN QUANTUM DOTS FOR SOLAR CELL APPLICATIONS. Shane Hendrix and Daniel Bullock, Department of Physical Science, Arkansas Tech University, Russellville, AR

9:00

TAKING ANOTHER LOOK: LIGHT N-CAPTURE ELEMENT ABUNDANCES IN METAL-POOR HALO STARS. Debra L. Burris, E. Marilea Jones and Jeremy Lusk, Department of Physics and Astronomy, University of Central Arkansas, 72035

Chemistry III (Brett Serviss, HSU) REY 322

8:00

SPECTRAL LINESHAPES FOR METHANE. Kyle E. Arthur, Harding Box 12562, Searcy, AR 72149-2562

8:15

SPECTROSCOPY OF COMBUSTION PROCESSES. Megan N. Bush, Harding Box 11348, Searcy, AR 72149-1348

8:30

DIODE LASER MAPPING OF WATER IN BIOLOGICAL SPECIMENS. Erin E. Fulks, Harding Box 12036, Searcy, AR 72149-2036

8:45

A VERSATILE MINI ROCKET TEST STAND. Aaron W. Howell, Harding Box 13581, Searcy, AR 72149-3581

9:00

SPECTROSCOPY USING A HERRIOTT CELL. Gregory W. Lyons, Harding Box 12323, Searcy, AR 72149-2323

Invertebrate Zoology I (Troy Bray, HSU) REY 120A

8:00

DISTRIBUTION AND TAXONOMIC STATUS OF TARANTULAS IN ARKANSAS (THERAPHOSIDAE: APHONOPLEMA). Michael D. Warriner, Arkansas Natural Heritage Commission, 1500 Tower Building, 323 Center Street, Little Rock, AR 72201

8:15

NEW ANT DISTRIBUTIONAL RECORDS FOR ARKANSAS. David M. General and Lynne C. Thompson, School of Forest Resources, Arkansas Forest Resources Center, 100 University Court, University of Arkansas at Monticello AR 71656

8:30

INSECTS INHABITING THE BURROWS OF THE OZARK POCKET GOPHER IN ARKANSAS. Peter Kovarik¹, Stephen W.

Arkansas Academy of Science

Chordas III², Gary A. Heidt³, Henry W. Robison⁴, Matthew B. Connior⁵, Justin G. Fiene⁵, and Paul E. Skelley⁶. ¹Columbus State Community College, 239 Crestview Road, Columbus, Ohio 43202. ²CLSE, Ohio State University, 1735 Neil Avenue, Columbus Ohio 43210; ³Department of Biology, University of Arkansas Little Rock, 2801 S. University, Little Rock, Arkansas 72204; ⁴Department of Biology, Southern Arkansas University, Magnolia, Arkansas 71754; ⁵Department of Biological Sciences, Arkansas State University, State University, Arkansas 72467; ⁶Florida State Collection of Arthropods, 1911 SW 34th St., P.O. Box 147100, Gainesville, Florida 32614.

8:45

FOUR NEW STATE RECORDS OF TERRESTRIAL HEMIPTERA (2 COREIDAE; 2 LYGAEOIDEA) FOR ARKANSAS. Stephen W. Chordas III¹ and Peter Kovarik², ¹Center for Life Sciences Education, The Ohio State University, 260 Jennings hall, 1735 Neil Avenue, Columbus Ohio 43210; ²Columbus State Community College, 239 Crestview Road, Columbus Ohio 43202.

9:00

AQUATIC MACROINVERTEBRATES OF 41 MISSOURI OZARK STREAMS. George L. Harp and Phoebe A. Harp, Dept. of Biological Sciences, Arkansas State University, State University, AR 72467

Vertebrate Zoology II (Bill Shepherd, Audubon Arkansas) REY 222A

8:00

THE ARKANSAS ENDEMIC BIOTA: AN UPDATE WITH ADDITIONS AND DELETIONS. Henry W. Robison, ²Chris T. McAllister, ³Christopher Carlton, and ⁴Gary Tucker. ¹Department of Biology, Southern Arkansas University, Magnolia AR 71754; ²Department of Biology, Chadron State College, Chadron, NE 69337; ³Department of Entomology, Louisiana State University, Baton Rouge, LA 70803; and ⁴Gary Tucker, FTN Associates, Ltd., 3 Innwood Circle, Suite 220, Little Rock, AR 72211

8:15

INVENTORY OF AMPHIBIAN, REPTILE, AND SMALL MAMMAL ASSOCIATES OF OZARK POCKET GOPHER HABITAT IN IZARD COUNTY, ARKANSAS. Matthew B. Connior, Idun Guenther, Thomas S. Risch, and Stanley E. Trauth, Department of Biological Sciences, Arkansas State University, PO Box 599, State University, AR 72467

8:30

FISHES OF RED RIVER OXBOW LAKES IN ARKANSAS. Thomas M. Buchanan, Department of Biology, University of Arkansas – Fort Smith, Fort Smith, AR 72913, Drew Wilson and L.G. Claybrook, Arkansas Game & Fish Commission, 2 Natural Resources Drive, Little Rock, AR 72205

8:45

THE POPULATION GENETICS OF STARGAZING DARTER IN ARKANSAS II: SURVEYING POPULATIONS. Tsunemi Yamashita, Department of Biological Sciences, Arkansas Tech University, Russellville, AR 72801

9:00

RABIES IN ARKANSAS BATS, 1983-2007. D. Blake Sasse¹ and David A. Saguey². ¹Arkansas Game and Fish Commission, #2 Natural Resources Drive, Little Rock, AR 72205; ² U.S. Forest Service, P.O. Box 189, Jessierville, AR 71949

Session IV: Saturday 12 April, 9:30 – 11:00 am

Biomedicine II (Charles Wu, ATU)

REY 127

9:30

THE EFFECT OF FRACTIONS OF HUMAN SEMEN ON STIMULATION AND INHIBITION ON THE GROWTH OF *TRICHOMONAS VAGINALIS*. James J. Daly Sr. and Jerome K. Sherman, Departments of Microbiology and Immunology and

Neurobiology and Developmental Sciences, University of Arkansas for Health Sciences, 4301 W. Markham, Little Rock, AR 72205

9:45

IDENTIFYING ROLE OF RING SUBSTITUENTS ON MOLECULAR BINDING AND STOICHIOMETRY FOR CYP2E1 COMPLEXES. Ryan M. Laddusaw¹, Daniel Judkins², Martin D. Perry, Jr², and Grover P. Miller¹, ¹Dept of Biochemistry and Molecular Biology, Univ. of Ark for Med Sciences, Little Rock 72205; ²Department of Chemistry, Ouachita Baptist University, Arkadelphia, AR 71998

10:00

PREVALENCE OF *STAPHYLOCOCCUS AUREUS* AMONG NURSING AND ALLIED HEALTH STUDENTS. David F Gilmore, William Wilson, Jennifer Little, Candy Lincoln, and Lauren Ford, PO Box 599, Dept. of Biological Sciences, Arkansas State University, State University, AR 72467

10:15

KNOWLEDGE DISCOVERY WITHIN FETAL ACTIVITY DATA. Dallas H. Snider, ²Xiaowei Xu, and ³Rathinaswamy B. Govindan. ¹University of Arkansas – Little Rock, Department of Applied Science, 2801 S. University – ETAS 575, Little Rock, AR 72204; ²University of Arkansas – Little Rock, Department of Information Science, 2801 S. University – ETAS 258, Little Rock, AR 72204; ³University of Arkansas for Medical Sciences, Department of Obstetrics and Gynecology, 4301 W. Markham, Little Rock, AR 72205

10:30

A COMPUTATIONAL BIOLOGY APPROACH TO FULL BREAST MATHEMATICAL MODELING. Jordan Greenlee and Magda El-Shenawee, University of Arkansas, Department of Electrical Engineering, 3217 Bell Engineering Center, Fayetteville, AR 72701

10:45

EXPRESSION AND LOCALIZATION OF MULTIPLE INOSITOL POLYPHOSPHATE PHOSPHATASE DURING APOPTOSIS. Samea Lone, Rahkee Agarwal, and Nawab Ali, PhD, Graduate Institute of Technology University of Arkansas at Little Rock, 2801 S. University Avenue, Little Rock, AR 72204

Science Potpourri (Anwar Bhuiyan, ATU) REY 322

9:30

AN AUTOMATED ATMOSPHERIC KINETICS APPARATUS. Christopher S. Smeal, Harding Box 12926, Searcy, AR 72149-2926

9:45

RAMAN SPECTROMETER. Stephen D. Wagner, Harding Box 11412 Searcy, AR 72149-1412

10:00

PROFILES ON THE FEMININE BURST INTO SCIENCE. Kristen K. Irwin, Undergraduate Student, Department of Biological Sciences Arkansas State University, P.O. Box 599, State University, 72467

10:15

COLLEGE STUDENTS' OPINIONS OF ENGAGING APPROACHES IN A PHYSICAL SCIENCE COURSE. Dr. Wilson J. González-Espada, Department of Physical Science, Arkansas Tech University, 1701 North Boulder Avenue, Russellville, AR 72801

10:30

PROLINE INCREASES THE THERMODYNAMIC STABILITY OF PROTEINS. Andrew Avery, D. Rajalingam Ph.D. and T.K.S. Kumar Ph.D., Department of Chemistry and Biochemistry, University of Arkansas, Fayetteville, Arkansas 72701

10:45

BENEFITS OF LEED DESIGNS IN ARKANSAS K-12 SCHOOLS. Philip Thrift and Darin Nutter, Dept. of Mechanical Engineering, University of Arkansas, Fayetteville, AR 72701

Arkansas Academy of Science

Invertebrate Zoology II (Henry Robison, SAU) REY 120A

9:30

EIMERIA WENRICHII (APICOMPLEXA: EIMERIIDAE) FROM THE WOODLAND VOLE, **MICROTUS PINETORUM** (RODENTIA: CRICETIDAE), FROM CENTRAL ARKANSAS: A NEW HOST AND GEOGRAPHIC RECORD. ¹Chris T. McAllister, ²Robert S. Seville, and ³Steve J. Upton. ¹Department of Physical and Life Sciences, Chadron State College, Chadron, NE 69337; ²Department of Zoology and Physiology, University of Wyoming/Casper Center, Casper, WY 82601; and ³Department of Biology, Ackert Hall, Kansas State University, Manhattan, KS 66506

9:45

A NEW STATE RECORD FOR EURYMERODESMUS MUNDUS CHAMBERLIN (DIPLOPODA: POLYDESMIDA: EURYMERODESMIDAE), FROM LOUISIANA, WITH NOTEWORTHY RECORDS OF EURYMERODESMID MILLIPEDES IN ARKANSAS, KANSAS, LOUISIANA, OKLAHOMA, AND TEXAS. ¹Chris T. McAllister and ²Rowland M. Shelley. ¹Department of Physical and Life Sciences, Chadron State College, Chadron, NE 69337; and ²Research Lab, North Carolina Museum of Natural Sciences, 4301 Reedy Creek Road, Raleigh, NC 27607

10:00

ACANTHOCEPHALAN PARASITES (ECHINORHYNCHIDA: HETERACANTHOCEPHALIDAE; POMPHORHYNCHIDAE) FROM THE PIRATE PERCH (PERCOPSIFORMES: APHREDODERIDAE), FROM THE CADDO RIVER, ARKANSAS. ¹Chris T. McAllister and ²Omar Amin. ¹Department of Physical and Life Sciences, Chadron State College, Chadron, NE 69337; and ²Institute of Parasitic Diseases, P. O. Box 28372, Tempe, AZ 85285

10:15

TEACHING A PLATYHELMINTH (BIPALIUM KEWENSE) NEW TRICKS. James J. Daly Sr.¹, Bruce White¹, and H. Michael Matthews², ¹Department of Microbiology and Immunology, University of Arkansas for Medical Sciences, 4301 W. Markham, Little Rock Arkansas 72205, and ²Department of Biology, Henderson State University, 1100 Henderson St., Arkadelphia, Arkansas 71999

POSTER PRESENTATIONS

BIOLOGY POSTERS (alphabetized by first author)

DETERMINATION OF FTSZ'S ROLE IN MITOCHONDRIAL FISSION. Brittany Carson, Amanda Jones, and Dr. Kari Naylor, Department of Biology, University of Central Arkansas, Conway, AR 72035

FREE RADICAL SCAVENGING PROPERTIES OF PLANT POLYPHENOLS. Xi Chen, Johnmesha Sanders, Sarah Crutchfield, and Stephen Grace, Ph.D., Department of Biology, University of Arkansas at Little Rock, Department of Chemistry and Physics, University of Arkansas at Pine Bluff

ANTIBODY HEAVY CHAIN V(D)J REARRANGEMENTS IN MERCURY-TREATED VS. CONTROL A.S.W MICE. Heather J. Clarke, Britne Kuykendall, and Ben Rowley, Department of Biology, University of Central Arkansas, Conway, AR 72035.

SURVEY OF THE SHORE AND AQUATIC VASCULAR FLORA OF THE BIG MAUMELLE RIVER DOWNSTREAM OF LAKE MAUMELLE, PULASKI COUNTY, ARKANSAS. Douglas N. Dawson, Rebecca Fry, Nickolas V. South, Margaret E. McMillan, Forest E. Payne, and James H. Peck, Department of Earth Science and Department of Biology, University of Arkansas, 2801 S. University Ave., Little Rock, AR 72204.

CYP2E1 OVEREXPRESSION INHIBITS SERCA ACTIVITY IN HEPG2 CELLS. Kerry L. Evans and Andres A. Caro, Ph.D., Chemistry Department, Hendrix College, Hendrix College, Conway, AR 72032

EFFECTS OF SCHEDULED BURNING IN CONTROL OF COMPETITION BETWEEN NATIVE AND INVASIVE HONEYSUCKLE IN ARKANSAS. Benjamin Frizzell and Katherine Larson, Department of Biology, University of Central Arkansas, Conway, AR 72035

SURVEY OF THE SHORE AND AQUATIC VASCULAR FLORA OF THE BIG MAUMELLE RIVER UPSTREAM OF LAKE MAUMELLE, PULASKI COUNTY, ARKANSAS. Rebecca L. Fry, Douglas N. Dawson, Nickolas V. South, Margaret E. McMillan, Forrest E. Payne, and James H. Peck, Department of Earth Sciences and Department of Biology, University of Arkansas at Little Rock, 2801 S. University Ave., Little Rock, AR 72204

ANTS OF ARKANSAS POST NATIONAL MEMORIAL: HOW AND WHERE COLLECTED. David M. General and Lynne C. Thompson, Arkansas Forest Resources Center, School of Forest Resources, University of Arkansas-Monticello, Monticello, AR 71656-3468

CREATING TOOLS TO STUDY IMMUNITY IN CANDIDA ALBICANS. Wes Greer, Department of Biological Sciences, University of Arkansas, Fayetteville, Ar 72701

DETERMINING CAF4'S FUNCTION IN SACCHAROMYCES CEREVISIAE. Matt Harvison, Jacob Seiter, and Dr. Kari Naylor, Department of Biology, University of Central Arkansas, Conway AR, 72035

THE INFLUENCE OF HEAT ACTIVATION OF BACILLUS SPORES DURING POST-PHAGOCYTOSIS STUDIES. Kristin Hester, and Olga Tarasenko, M.D., Ph.D.; Department of Biology, University of Arkansas Little Rock, Little Rock, Arkansas

SCATTER-CACHING BEHAVIOR IN EASTERN GRAY SQUIRRELS (SCIURIS CAROLINENSIS). Lucy Holifield and Dr. Jennifer Penner, Department of Psychology, Hendrix College, Conway, AR 72032

THE EFFECT AGE AND SEX ON VISUAL REACTION TIMES. Hutson, C. and T. Smith, Southern Arkansas University, Dept. of Biology, Magnolia, AR 71753

RELATIONSHIPS BETWEEN GROUNDWATER LEVEL AND FURBEARER ABUNDANCE IN THE NORTHERN ARKANSAS MISSISSIPPI ALLUVIAL VALLEY. John Kidd and Robert E. Kissell, Jr., Arkansas Forest Resources Center, School of Forest Resources, University of Arkansas-Monticello, Monticello, AR 71656

UTILIZING MOLECULAR MARKERS TO ESTABLISH THE GENETIC RELATEDNESS WITHIN SELECTED FAMILIES AND GENOTYPES OF BLACKBERRY PLANTS. Nicole Knox, Madeline Richmond, and JD Swanson, Department of Biology, University of Central Arkansas, Conway, AR 72035

ANTIBACTERIAL PROPERTIES OF SPICES. Koroney, A. and T. Smith, Southern Arkansas University, Dept. of Biology, Magnolia, AR 71753

DENDROCHRONOLOGY ANALYSIS OF THE RED RIVER IN SOUTHWEST ARKANSAS. Rebecca Lewis, Leo Carson Davis, Department of Biology and Department of Geology, Southern Arkansas University, 100 East University, Magnolia, AR 71753

A PILOT IN VIVO STUDY OF IMMUNE RESPONSES TO A NOVEL NICKEL-BASED ANTI-TUMOR COMPOUND IN MERCURY SUSCEPTIBLE A.S.W MICE. J. Leigh Methvin, D. Brett Rabeneck, Patrick J. Desrochers, and Ben Rowley, Department of Biology, University of Central Arkansas, Conway, AR 72035

STUDY OF HUMAN MACROPHAGE VIABILITY DURING GLYCOCONJUGATE-ENHANCED PHAGOCYTOSIS OF BACILLUS CEREUS SPORES. Ashley Scott, and Olga Tarasenko, M.D., Ph.D. Department of Biology, University of Arkansas at Little Rock, Little Rock, Arkansas

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SURVEY OF THE SHORE AND AQUATIC VASCULAR FLORA OF THE LITTLE MAUMELLE RIVER DOWNSTREAM FROM PINNACLE MOUNTAIN TO THE ARKANSAS RIVER, PULASKI COUNTY, ARKANSAS. Nikolas V. South, Rebecca L. Fry, Douglas N. Dawson, Margaret E. McMillan, Forrest E. Payne, and James H. Peck, Department of Earth Science and Department of Biology, University of Arkansas at Little Rock, 2801 S. University Ave., Little Rock, AR 72204.

MACROPHYTE SURVEY OF THE SHORE AND AQUATIC VASCULAR FLORA OF LAKE MAUMELLE, PULASKI COUNTY, ARKANSAS. Sharon M. Sweeney, Nickolas V. South, Christopher J. Schaller, Jeremy P. Reese, Philip A. James, Mitchell G. Burroughs, Margaret E. McMillan, Forrest E. Payne, and James H. Peck, Department of Earth Science and Department of Biology, University of Arkansas at Little Rock, 2801 S. University Ave., Little Rock, AR 72204.

OXIDATION OF BIOMOLECULES IN MICROSOMES DERIVED FROM CYP2E1-OVEREXPRESSING HEPG2 CELLS. Joe Thomas and Andres A. Caro, Ph.D., Chemistry Department, Hendrix College

TERRITORIALITY OF MALE SWAMP RABBITS (*SYLVILAGUS AQUATICUS*) IN SOUTHEASTERN ARKANSAS. Karen B. Vale and Robert E. Kissell, Jr., Arkansas Forest Resources Center, School of Forest Resources, University of Arkansas-Monticello, Monticello, AR 71656

COMPATIBLE STEM TAPER AND TOTAL TREE VOLUME EQUATIONS FOR LOBLOLLY PINE (*PINUS TAEDA L.*) PLANTATIONS IN SOUTHEASTERN ARKANSAS. Curtis L. VanderSchaaf, Arkansas Forest Resources Center, University of Arkansas at Monticello, Monticello, AR 71656

RETINOBLASTOMA FAMILY MEMBER P107 IN ADIPOCYTE DIFFERENTIATION. Michael Wainwright, Tyler Sanford and Timothy E. Hayes, Ph.D., Depts. of Biology and Chemistry, Ouachita Baptist University

LAND-COVER CHARACTERIZATION USING AN OBJECT-BASED CLASSIFIER FOR THE BUFFALO RIVER SUB-BASIN IN NORTH-CENTRAL ARKANSAS. Robert C. Weih, Jr. and Don White, Jr., Spatial Analysis Laboratory (SAL), University of Arkansas at Monticello (UAM) Arkansas Forest Resources Center, School of Forest Resources, 110 University Court, Monticello, Arkansas 71656

HISTORICAL FOREST LANDSCAPE CHANGES IN THE BUFFALO RIVER SUB-BASIN IN ARKANSAS. Robert C. Weih, Jr.¹ and Aaron J. Dick², ¹Spatial Analysis Laboratory (SAL), University of Arkansas at Monticello, Arkansas Forest Resources Center, School of Forest Resources, 110 University Court, Monticello, Arkansas 71656; ²Bureau of Land Management 4621 East 65th Avenue Lower, Spokane, WA 99223

CAF4'S ROLE IN MITOCHONDRIAL FISSION EVENTS. Emily Woods, Justin Allen, and Dr. Kari Naylor, Department of Biology, University of Central Arkansas, Conway, 72035

CHEMISTRY POSTERS (alphabetized by first author)

NOVEL THIOSEMICARBAZONES FROM 9-ANTHRALDEHYDE AND THEIR COPPER AND RUTHENIUM COMPLEXES. Floyd Beckford and Gabriel Leblanc, Lyon College, 2300 Highland Road, Batesville, AR 72501

INTER- AND INTRAMOLECULAR KETENE-NITRILE OXIDE CYCLOADDITIONS. Mack Clements and Jay P. Deville, PhD, Department of Chemistry, Henderson State University, 1100 Henderson St., Arkadelphia, AR 71999-0001

A SURVEY OF GROUND LEVEL RADON IN A TWO COUNTY AREA. Heather Collier and Bryan D. Palmer, Ph.D., Department of Chemistry, Henderson State University, Arkadelphia AR 71999

PREPARATION OF FUNCTIONALIZED NANOTUBES FOR INVERSE GAS CHROMATOGRAPHIC ANALYSIS. Lisa K. Cortez, Chad B. R. Seevers, John R. Hardee, Ph.D. and Jay P. Deville, Department of Chemistry, Henderson State University, 1100 Henderson St., Arkadelphia, AR 71999-0001

REACTIVE INTERMEDIATES IN DIELS-ALDER CYCLOADDITIONS. Kitior Fofung and Jay P. Deville, Department of Chemistry, Henderson State University, 1100 Henderson St., Arkadelphia, AR 71999-0001

SYNTHESIS AND BIOLOGICAL ACTIVITY OF THYMOL DERIVATIVES. Michael Haltom, Rebecca Staton, Christopher Guyer, and Jay P. Deville, Department of Chemistry, Henderson State University, 1100 Henderson St., Arkadelphia, AR 71999-0001

AN INVESTIGATION OF SCANDIUM, STRONTIUM, AND ALUMINUM SUBSTITUTIONS IN YBCO TYPE SUPERCONDUCTORS. Benjamin Hornbeck and Bryan D. Palmer Ph.D., Department of Chemistry, Henderson State University, 1100 Henderson St., Arkadelphia, AR 71999-0001

SYNTHESIS OF HIGHLY SUBSTITUTED ALLYLIC ALCOHOLS AND ESTERS. Ryne Johnston and Martin J. Campbell, Ph.D, Department of Chemistry, Henderson State University, 1100 Henderson St., Arkadelphia, AR 71999-0001

ETHYLGLUCURONIDE (EtG) ASSESSED BY TWO METHODS FOLLOWING FRAGRANCE AND HAND SANITIZER EXPOSURE IN MEN AND WOMEN. Julie Kissack, Harding University, College of Pharmacy, Searcy, AR 72149

AN INVESTIGATION OF BARIUM OXIDE REPLACEMENT IN YBCO TYPE SUPERCONDUCTORS. Luke S. McCage and Bryan D. Palmer, Ph.D., Department of Chemistry, Henderson State University, Arkadelphia AR 71999

EXAMINATIONS INTO THE UTILITY OF THE ACYCLIC ALLYLIC DIAZENE REARRANGEMENT. Blake Williams, Matt McIntosh, and Wei Qi. University of Arkansas-Fayetteville Department of Chemistry and Biochemistry. 119 Chemistry Building, Fayetteville, AR 72701.

PHYSICS POSTERS (alphabetized by first author)

RESONANCE RAMAN SPECTROSCOPY FOR THE INVESTIGATION OF HETEROLEPTIC RUTHENIUM POLYPYRIDINE COMPLEXES. Anwar A. Bhuiyan, Department of Physical Sciences, Arkansas Tech University, Russellville, AR 72801

THICKNESS DETERMINATION USING RUTHERFORD BACKSCATTERING OF ALPHA-PARTICLES. Russell Cline, Brian Halldorson, and Rahul Mehta, Department of Physics and Astronomy, Lewis Science Center 171, University of Central Arkansas, 201 Donaghey Avenue, Conway, AR 72035

HYBRID ROCKET RESTART CAPABILITIES. Joseph Gracy and Larry Roe, Ph.D., Mechanical Engineering Department, University of Arkansas-Fayetteville

DESIGN AND IMPLEMENTATION OF A DIGITAL ACCELEROMETER. Shane Hendrix and Daniel Bullock, Department of Physical Science, Arkansas Tech University, Russellville, AR

APPLICATIONS OF DIGITAL SIGNAL CONTROLLER IN SUBMICRON POSITION CONTROL OF A LINEAR MOTOR. Coletha Johnson and Jing Zhang, Systems Engineering Department, University of Arkansas at Little Rock, Little Rock, AR 72204

ERROR ANALYSIS OF N-CAPTURE ELEMENT ABUNDANCE IN HALO GIANTS. E. Marilea Jones and Debra L. Burris, Department of Physics and Astronomy, University of Central Arkansas, Conway, 72035

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PIXE AND RUTHERFORD SCATTERING OF ALPHA PARTICLES. Patrick Kells, Nathan Walsh, and Rahul Mehta Department of Physics and Astronomy, Lewis Science Center 171, University of Central Arkansas, 201 Donaghey Avenue, Conway, AR 72035

GAMMA RAY SPECTROSCOPY: DETERMINING HALF-LIVES AND ABSORPTION COEFFICIENTS. Michael C. Kitchens and Rahul Mehta, Department of Physics and Astronomy, Lewis Science Center 171, University of Central Arkansas, 201 Donaghey Avenue, Conway, AR 72035

A COMPARISON OF THE LIGHT N-CAPTURE ELEMENTS TO BARIUM IN HALO STARS. Jeremy Lusk and Debra L. Burris, University of Central Arkansas, Dept. of Physics and Astronomy, Conway, AR 72035