

2006

90th Annual Meeting, 2006. Program

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PROGRAM

Arkansas Academy of Science
90th Annual Meeting
April 7-8, 2006
Lyon College

SCHEDULE OF EVENTS

Friday, April 7

- 8:00 a.m. - 4:00 p.m. Registration. Derby Center, 1st floor lobby
- 8:00 a.m. - 11:45 a.m. Workshops Derby Center (locations below)
- 10:00 a.m. - 11:30 a.m. AAS Executive Meeting Lyon Building, Worthen Room
- 12:00 p.m. - 2:00 p.m. Poster Setup Alphin Building, Kresge Gallery
- 12:15 p.m. - 12:45 p.m. Judges Meeting Derby Center, Room 007
- 1:00 p.m. - 2:30 p.m. Oral Presentations (Session 1) Derby Center, Rooms 009, 011, 016, 023
- 2:30 p.m. - 3:15 p.m. Poster Session, Alphin Building, Kresge Gallery
- 3:30 p.m. - 5:00 p.m. Oral Presentations (Session 2) Derby Center, Rooms 009, 011, 016, 023
- 4:00 p.m. - 5:00 p.m. AAS Science Education Committee Meeting Lyon Building, Worthen Room
- 5:15 p.m. - 6:15 p.m. First Business Meeting Lyon Building, Nucor Auditorium
- 6:15 p.m. - 7:00 p.m. Mixer Lyon Building, 2nd floor patio
- 7:00 p.m. - 8:00 p.m. Banquet Edwards Commons, Dining Hall
- 8:00 p.m. - 9:00 p.m. Keynote Address by Dr. Guy Consolmagno Edwards Commons, Dining Hall

Saturday, April 8

- 7:30 a.m. - 8:30 a.m. Continental Breakfast Derby Center, Basement
- 8:00 a.m. - 9:30 a.m. Registration Derby Center, 1st floor lobby
- 8:00 a.m. - 9:15 a.m. Oral Presentations (Session 3) Derby Center, Rooms 009, 011, 016, 023
- 9:30 a.m. - 10:30 a.m. UAMS Admissions Workshop Lyon Building, Nucor Auditorium
- 9:30 a.m. - 10:45 a.m. Oral Presentations (Session 4) Derby Center, Rooms 009, 011, 016
- 10:30 a.m. - 12:00 p.m. Poster Takedown Alphin Building, Kresge Gallery
- 11:00 a.m. - 11:15 a.m. AJAS Winner Oral Presentation Lyon Building, Nucor Auditorium
- 11:15 a.m. - 12:15 p.m. Second Business Meeting Lyon Building, Nucor Auditorium
- 12:15 p.m. Adjourn

SECTION PROGRAMS

* Undergraduate **Graduate

ORAL PRESENTATIONS

(Speakers' Underlined)

Session I: Friday April 7, 2006, 1:00 pm - 2:30 pm

Physics/Engineering I

Derby Room 009

- 1:00 pm **STUDY OF CAUSAL COMPONENT PLACEMENT IN AN ACTIVE SOUND CANCELLATION SYSTEM.** Eileen Anderson and Andrew B. Wright Department of Applied Science, University of Arkansas at Little Rock, 2801 S. University, Little Rock, AR 72204

- 1:15 pm **ANALYSIS OF BEARING VIBRATION SIGNATURES USING THE HILBERT-HUANG TRANSFORM.** Shivan Haran¹, Mario A. Davidson¹ and Liming W. Salvino² ¹College of Engineering, Arkansas State University, State University (Jonesboro), AR 72467 ²Structures and Composite (Code 652), Carderock Division, NSWC, 9500 MacArthur Boulevard, West Bethesda, MD 20817-5700

- 1:30 pm **INVESTIGATION OF ELECTROMAGNETIC SHIELDING IN FERROMAGNETIC NANO/MICRO POWDER/ POLYMER COMPOSITE FILMS.** Matthew Lemay, Robert Engelken, David Harlan, W. Clark Marler and Michael Sattler Optoelectronic Materials Research Laboratory, College of Engineering, Arkansas State University, P.O. Box 1740, State University, AR 72467

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- 1:45 pm **ANTIFORCE BREAKDOWN WAVES.** Michael Weller and Mostafa Hemmati Physical Science Department, Arkansas Tech University, Russellville, AR 72801
- 2:00 pm **WHEN YOU CAN'T TAKE A DUST MOP TO SPACE: A SOLUTION TO THE MARS ROVER PARTICLE ADHESION PROBLEM.** Chris A. Wyatt Department of Applied Science, University of Arkansas at Little Rock, 2810 S. University Ave, Little Rock, AR 72204
- 2:15 pm **NANO-SCIENCE MATERIAL RESEARCH, DEVELOPING QUANTUM DOTS AS IR DETECTORS.** Kenauyiya Strain¹, Mansour Mortazavi¹, Gregory Salamo² and Ziad Abu-Waar²
¹University of Arkansas at Pine Bluff, Pine Bluff, Arkansas 71601
²University of Arkansas, Fayetteville, Arkansas 72701

Forestry & Environmental Science I

Room 011

- 1:00 pm **HENDERSON MIDDLE SCHOOL ENVIRONMENTAL EDUCATION OUTREACH.** Marcy Bonewits, Souvidhya Khadka, Drew Pendergraft and Ginny Adams University of Central Arkansas, Environmental Science Program, 016 LSC, Conway, AR 72035-5003
- 1:15 pm **POPULATION STATUS AND DISTRIBUTION OF SPRING CAVEFISH, *FORBESICHTHYS AGASSIZI*, IN SOUTHEAST MISSOURI.** Bonnie Earleywine, Ginny Adams and S. Reid Adams Department of Biology, University of Central Arkansas, Conway, AR 72035
- 1:30 pm **DIFFERENCES IN CORAL COMMUNITY STRUCTURE REFLECT IMPACTS OF INDIGENOUS VILLAGES AND AGRICULTURE AT 9 REEF SITES IN KUNA YALA, PANAMA.** Shara Jones, Michelle Dare, April Helms and James Engman Henderson State University, Biology Department, Box 7520, Arkadelphia, AR 71999-0001
- 1:45 pm **ARKANSAS' AGRICULTURAL BIOMASS REALLOCATION POTENTIALS.** Jason Self, Aaron Archer and Robert Engelken Arkansas State University, Department of Environmental Sciences, College of Engineering, P.O. Box 1740, State University, AR 72467
- 2:00 pm **THE ROLE OF BIOLOGY AND CULTURE IN SPECIES INVASIONS: CONTRASTING EVIDENCE FROM TWO INVADED RANGES** Taldi Walter and Katherine Larson Department of Biology, University of Central Arkansas, Conway, AR 72035
- 2:15 pm **FIVE YEARS OF CHANGE IN AN OLD-GROWTH PINE-HARDWOOD REMNANT IN ASHLEY COUNTY, ARKANSAS.** Don C. Bragg USDA Forest Service, Southern Research Station, P.O. Box 3516 UAM, Monticello, AR 71656

Biochemistry/Cell Biology

Derby Room 016

- 1:00 pm **STRUCTURAL STUDIES OF THE BACTERIOPHAGE T4 HELICASE DDA.** Lauren P. Blair University of Arkansas for Medical Sciences, 4301 W. Markham, Little Rock, AR, 72205
- 1:15 pm **A MUTATION IN ESTROGEN RECEPTOR ALPHA THAT SELECTIVELY ATTENUATES ACTIVATION BY PHYTOESTROGENS.** Barry D. Gehm, J. C. Douglas and Justin Holt Science Division, Lyon College, Batesville, AR 72501

- 1:30 pm **TRANS-ACTIVATION OF A MEIOTIC HOMOLOGOUS RECOMBINATION HOTSPOT IN *ADE6* OF *SCHIZOSACCHAROMYCES POMBE* BY CHIMERIC PROTEIN GAL4DBD-ATF1.** Jun Gao, Mari K. Davidson and Wayne P. Wahls Department of Biochemistry and Molecular Biology, University of Arkansas for Medical Sciences, Little Rock, Arkansas 72205

- 1:45 pm **DEVELOPING A *C. ELEGANS*-BASED BIOASSAY FOR ESTROGENIC ACTIVITY** Barry D. Gehm, Katie McLean, Justin Holt, Ashley Turensky, Allyn Dodd and Tim Lindblom Science Division, Lyon College, Batesville, AR 72501

- 2:00 pm **TRANS-ACTIVATION OF MEIOTIC RECOMBINATION BY mRNA** Jacy L. Wagnon, Mari K. Davidson and Wayne P. Wahls Department of Biochemistry and Molecular Biology, University of Arkansas for Medical Sciences, Little Rock, AR 72205

- 2:15 pm **FORMATION OF MULTIPLE CYP2E1 COMPLEXES AFFECTS ACTIVITY** Arvind P. Jamakhandi¹, Daniel E. Sanders² and Grover P. Miller¹ ¹Department Biochemistry and Molecular Biology, University of Arkansas for Medical Sciences, Little Rock, AR 72205 ²Southern Arkansas University, Magnolia, AR 71753

General Biology I

Derby Room 023

- 1:00 pm **POLYUNSATURATED FATTY ACIDS METABOLIC ABNORMALITIES IN EXPERIMENTAL HYPOTHYROIDISM** Lawrence M. Mwasi University of Arkansas at Pine Bluff, Department of Biology, Mail Slot 4972, 1200 North University Drive, Pine Bluff, AR 71601

- 1:15 pm **THE VERTICAL DISTRIBUTION OF MYXOMYCETES WITHIN FOREST FLOOR LITTER** Adam W. Rollins and Steven L. Stephenson Department of Biological Sciences, University of Arkansas, Fayetteville, AR 72701

- 1:30 pm **FISH COMMUNITY STRUCTURE IN FLOODPLAIN WETLANDS OF THE ARKANSAS RIVER** Matt D. Schroeder, Robert L. Clark and S. Reid Adams University of Central Arkansas, Conway, AR 72034

- 1:45 pm **GENETIC STRATEGIES FOR IMPROVEMENT OF VARICELLA VACCINE** Toby M. Ward and Wayne L. Gray University of Arkansas for Medical Sciences, 4301 W. Markham Street, Little Rock, AR 72205

- 2:00 pm **MYCETOZOANS OF THE NATIONAL PARKS** Katherine E. Winsett¹, Sally Edwards¹, Lora Lindley¹, Melissa McElderry¹, Rodney K. Nelson², Fred Spiegel¹ and Steven L. Stephenson¹
¹University of Arkansas, Department of Biological Sciences, SCEN 601, Fayetteville AR, 72701 ²University of Arkansas, Fort Smith, Math-Science 226, 5210 Grand Avenue, PO Box 3649, Fort Smith AR, 72913

- 2:15 pm **THE SIMIAN VARICELLA VIRUS GENE 61 IS A VIRAL TRANSACTIVATOR BUT IS NOT ESSENTIAL FOR REPLICATION IN CELL CULTURE** Kara Davis, Toby Ward, Yang Ou and Wayne L. Gray University of Arkansas for Medical Sciences, Little Rock, AR 72205

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Session II: Friday April 7, 2006, 3:30 pm – 5:00 pm

Chemistry

Derby Room 009

- 3:30 pm **RESPONSE SURFACE OPTIMIZATION OF A MICROWAVE ASSISTED PERKIN REACTION** Laura McWilliams and R. David Pace Science Division, Lyon College, P.O. Box 2317, Batesville, AR 72503
- 3:45 pm **DEPOSITION OF NOVEL SEMICONDUCTOR/POLYMER NANOCOMPOSITE PHOTOCONDUCTOR CONFIGURATIONS** Raphael Kueff, David Harlan, Robert Engelken, W. Clark Marler and Michael Sattler Optoelectronic Materials Research Laboratory, Electrical, Computer, and Information Engineering Program, Arkansas State University, P.O. Box 1740, State University (Jonesboro), AR 72467
- 4:00 pm **SYNTHESIS, CHARACTERIZATION, AND ANTIMICROBIAL ACTIVITY OF NOVEL THIOSEMICARBAZONES AND THEIR TRANSITION METAL COMPLEXES** Floyd A. Beckford and Amon Holt Science Division, Lyon College, Batesville, AR 72501
- 4:15 pm **ACETATE INDUCED REARRANGEMENT OF METAL-BOUND PYBOX LIGANDS** Abul B. Kazi¹, David A. Vicic² and Gavin D. Jones² ¹Department of Chemistry and Physics, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601 ²Department of Chemistry and Biochemistry, University of Arkansas, Fayetteville, AR 72701
- 4:30 pm **PHOTOCONDUCTANCE PROPERTIES OF CHEMICALLY DEPOSITED FILMS OF LOW HAZARD, ENVIRONMENTALLY BENIGN BISMUTH SULFIDE FILMS** W. Clark Marler, Robert Engelken, Michael Sattler, David Harlan, Matthew Lemay and Raphael Kueff Optoelectronic Materials Research Laboratory, Electrical, Computer, and Information Engineering Program, Arkansas State University, P.O. Box 1740, State University (Jonesboro), AR 72467
- 4:45 pm **MEASUREMENT OF ANTIOXIDANT CAPACITY OF AMINOTHIOLS AND THIAZOLIDINES USING THE TEAC ASSAY** Richard Walker, Yvonne Abbey, Malcom Mathis II and Janeé Adams Department of Chemistry and Physics, University of Arkansas at Pine Bluff, Slot 4941, Pine Bluff, AR 71601

Forestry/Environmental Science II

Derby Room 011

- 3:30 pm **INDIVIDUAL-TREE, OUTSIDE-BARK, GREEN SAWLOG WEIGHT EQUATIONS FOR THREE HARDWOOD SPECIES IN NORTHWEST ARKANSAS** Paul F. Doruska, Jonathan I. Hartley, Matthew B. Hurd and David W. Patterson Arkansas Forest Resources Center, University of Arkansas - Monticello School of Forest Resources, P.O. Box 3468, Monticello, AR 71656
- 3:45 pm **INDIVIDUAL-TREE, OUTSIDE-BARK, MERCHANDIZED STEM LENGTH GREEN WEIGHT EQUATIONS FOR SAWTIMBER-SIZED HARDWOOD SPECIES IN SOUTHERN ARKANSAS** Matthew B. Hurd, Paul F. Doruska, David W. Patterson, and Jonathan I. Hartley Arkansas Forest Resources Center, University of Arkansas - Monticello School of Forest Resources, P.O. Box 3468, Monticello, AR 71656
- 4:00 pm **TONS PER THOUSAND BOARD FEET CONVERSION FACTORS FOR ARKANSAS HARDWOODS** Jonathan I. Hartley, Paul F. Doruska, David W. Patterson and Matthew B. Hurd Arkansas Forest Resources Center, University of Arkansas-Monticello School of Forest Resources, P.O. Box 3468, Monticello, AR 71656

4:15 pm **EFFECTS OF PRESCRIBED BURNING ON REPRODUCTION OF THE WESTERN SLIMY SALAMANDER (*PLETHODON ALBAGULA*) IN ARKANSAS** Joseph R. Milanovich and Stanley E. Trauth Department of Biological Sciences, Arkansas State University, State University, AR 72467-0599

4:30 pm **A COMPLEX FOREST ON THE WHITE RIVER NATIONAL WILDLIFE REFUGE: IMPLICATIONS FOR BOTTOMLAND HARDWOOD OLD GROWTH** Brian Roy Lockhart¹ and Jamie E. Kellum² ¹U.S. Forest Service Southern Research Station, Center for Bottomland Hardwoods Research, P.O. Box 227, Stoneville, MS 38776 ²U.S. Fish and Wildlife Service, White River National Wildlife Refuge, P.O. Box 47, St. Charles, AR, 72140

4:45 pm **ECONOMIC IMPACTS OF FUTURE BIOREFINERIES IN THE STATE OF ARKANSAS** Sayed R. Mehmood and Matthew Pelkki Arkansas Forest Resource Center, School of Forest Resources, University of Arkansas at Monticello, P.O. Box 3468, Monticello, AR 71656

General Biology II

Derby Room 016

- 3:30 pm **A HYBRID ALGORITHM BASED ON MIE THEORY AND EVOLUTION STRATEGY FOR BREAST CANCER IMAGING** Shruti Pandalaraju¹, Payam Rashidi¹, Magda El-Shenawee¹ and Demetrio Macias² ¹Department of Electrical Engineering, University of Arkansas, Fayetteville, AR 72701, USA ²Laboratoire de Nanotechnologie et d'Instrumentation Optique -CNRS FRE 2671, Université de Technologie de Troyes, 12 rue Marie Curie, B.P. 2060, 10010 Troyes, France
- 3:45 pm **IMPROVED MICROSTRIP PATCH ANTENNA FOR BREAST CANCER DETECTION** Gokul Nanda Talapanuri and Magda El-Shenawee Department of Electrical Engineering, University of Arkansas, Fayetteville, AR 72701
- 4:00 pm **NEURAL NETWORKS AS STATISTICAL INDICATOR OF BREAST CANCER USING SCATTERED ELECTROMAGNETIC DATA** Douglas Woten¹, Payam Rashidi², John Lusth³ and Magda El-Shenawee² ¹Microelectronics - Photonics Program (MicroEP); ²Department of Electrical Engineering; ³Department of Computer Science and Computer Engineering, University of Arkansas, Fayetteville, AR 72701
- 4:15 pm **MYXOMYCETES AS POTENTIAL BIOMONITORS OF AERIAL POLLUTANTS - A PRELIMINARY INVESTIGATION IN ROCKY MOUNTAIN NATIONAL PARK** Rodney K. Nelson¹ and Steve L. Stephenson² ¹Department of Biology, University of Arkansas-Fort Smith, Fort Smith, Arkansas 72913 ²Department of Biological Sciences, University of Arkansas-Fayetteville, Fayetteville, Arkansas 72701
- 4:30 pm **MYXOMYCETES OF THE TALAMANCA RANGE, COSTA RICA** Carlos Rojas¹, Steven L. Stephenson¹ and Martin Schnittler² ¹Department of Biological Sciences, University of Arkansas, Fayetteville, AR 72701
- 4:45 pm **HISTORY AND CURRENT STATUS OF CHANNEL CATFISH POPULATIONS WITHIN BUFFALO NATIONAL RIVER (BUFF)** Faron D. Usrey¹, Shawn Hodges¹, Mark Oliver² and Ken Shirley² ¹Buffalo National River, 405 North Main, Harrison, AR 42601 ²Arkansas Game and Fish Commission, Fisheries District 2, Mountain Home, AR 72653

Arkansas Academy of Science

General Biology III

Derby Room 023

- 3:30 pm **REPORT OF TRAPPING RATES FOR TURTLES OF THREE NORTHWESTERN LOUISIANA LACUSTRINE SYSTEMS, WITH BIOTELEMETRY OF NATIVE VS. NON-NATIVE ALLIGATOR SNAPPING TURTLES (*MACROCHELYS TEMMINCKII*)** V. Bogosian and L. M. Hardy Museum of Life Sciences, Louisiana State University in Shreveport, One University Place, Shreveport, Louisiana 71115
- 3:45 pm **NEW EVIDENCE FOR MATERNITY COLONIES OF THE INDIANA BAT (*MYOTIS SODALIS*) IN THE DELTA OF ARKANSAS** Stephen C. Brandebura, Rex E. Medlin and Thomas S. Risch Department of Biological Sciences, Arkansas State University, Jonesboro, AR, 72467
- 4:00 pm **ICHTHYOFAUNAL ASSEMBLAGES IN THREE PROXIMATE BUT ECOLOGICALLY DIVERSE STREAMS IN CLARK COUNTY, ARKANSAS** Scott Jordan¹, Renn Tumblison¹, Lesley Self¹ and Henry W. Robison² ¹Department of Biology, Henderson State University, Arkadelphia, AR 71999 ²Department of Biology, Southern Arkansas University, Magnolia, AR 71754
- 4:15 pm **DISCRIMINATION OF COLIFORM SOURCES IN ARKANSAS RIVER VALLEY WATERWAYS** Anna Goodwin, Jennifer Looper, Callie Causey, Amanda Ingle, Sarah Norman, Scott Kirkconnell and Tsunemi Yamashita Biology Department, Arkansas Tech University, Russellville, AR 72801
- 4:30 pm **DISTRIBUTION OF ARKANSAS'S BOTTOMLAND BATS** Rex E. Medlin, Jr., Stephen C. Brandebura, H. Bobby Fokidis and Thomas S. Risch Arkansas State University, Department of Biological Sciences, State University, AR 72467
- 4:45 pm **THE IMPACTS OF ROADWAYS ON THE POPULATION DEMOGRAPHY OF TURTLE POPULATIONS** Sara Ruane and Stephen A. Dinkelacker University of Central Arkansas, Department of Biology, Conway, Arkansas, 72035

Session III: Saturday April 8, 2006, 8:00 am – 9:15 am

Computer Science/Science Education

Derby Room 009

- 8:00 am **INNOVATIVE APPLICATIONS OF CLASSROOM RESPONSE SYSTEMS: INVESTIGATING STUDENTS' ITEM RESPONSE TIME** Wilson J. Gonzalez-Espada and Daniel W. Bullock School of Physical and Life Sciences, Arkansas Tech University, 1701 North Boulder Avenue, Russellville, AR 72801
- 8:15 am **DUELING DISCIPLINES: TEACHING PHYSICS THROUGH MUSIC** Joel Plaag¹, Stuart Hutton² and Ying Hutton³ ¹Fine Arts Division and ²Science Division, Lyon College, Batesville, AR 72503 ³Department of Physics and Astronomy, University of Central Arkansas, Conway, AR 72035
- 8:30 am **LEVELS OF UNDERSTANDING OF PHYSICAL SCIENCE CONCEPTS OF COLLEGE STUDENTS ENROLLED IN GENERAL EDUCATION PHYSICAL SCIENCE COURSES** Tillman Kennon, Arkansas State University, Chemistry and Physics Department, PO Box 419, State University, AR 72467-0419
- 8:45 am **SCIENCE LABORATORY SAFETY TRAINING FOR 7-12 ARKANSAS TEACHERS** Tillman Kennon and Ann Ross Arkansas State University, Chemistry & Physics and Teacher Education Departments, PO Box 419, State University, AR 72467-0419

- 9:00 am **PARALLEL ALGORITHMS FOR MULTICRITERIA SHORTEST PATH PROBLEMS** David L. Sonnier Lyon College, P.O. Box 2317, Batesville, Arkansas, 72503

Aquatic Biology I

Derby Room 011

- 8:00 am **DISTRIBUTION OF BASS TAPEWORM AND YELLOW GRUB INFECTIONS IN ARKANSAS IMPOUNDED RESERVOIRS AND UPLAND STREAMS** James J. Daly, Sr.², Randall J. Keller¹, and Bruce DeYoung² ¹Department of Occupational Safety and Health, P.O. Box 9, Murray State University, Murray, KY, 42071 ²Department of Microbiology and Immunology, University of Arkansas for Medical Sciences, Little Rock, AR 72205
- 8:15 am **A NON-INVASIVE TECHNIQUE FOR ASSESSING THE POPULATION PARAMETERS OF *CLINOSTOMUM* METACERCARIA IN SMALLMOUTH BASS (*MICROPTERUS DOLOMIEU*)** James J. Daly, Sr.², Randall J. Keller¹, and Bruce DeYoung² ¹Department of Occupational Safety and Health, P.O. Box 9, Murray State University, Murray, KY, 42071 ²Department of Microbiology and Immunology, University of Arkansas for Medical Sciences, Little Rock, AR 72205
- 8:30 am **THE USE OF PARAMETRIC STATISTICAL METHODS FOR DETERMINING SIGNIFICANT DIFFERENCES BETWEEN POPULATIONS OF *CLINOSTOMUM* METACERCARIA IN SMALLMOUTH BASS** James J. Daly, Sr.¹ and Randall J. Keller² ¹Department of Microbiology and Immunology, University of Arkansas for Medical Sciences, Little Rock, AR 72205 ²Department of Occupational Safety and Health, P.O. Box 9, Murray State University, Murray, KY, 42071
- 8:45 am **SITE DENSITY DISTRIBUTION OF "YELLOW GRUB" (*CLINOSTOMUM MARGINATUM*) IN PONDRAISED CHANNEL CATFISH (*ICTALURUS PUNCTATUS*)** Jeurel Singleton¹, James J. Daly Sr.² and Randall J. Keller³ ¹Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD ²Department of Microbiology, University of Arkansas for Medical Sciences, Little Rock, AR ³Department of Occupational Safety and Health, Murray State University, Murray, KY

- 9:00 am **NOTEWORTHY GEOGRAPHIC DISTRIBUTION RECORDS FOR THE GOLDEN TOPMINNOW, *FUNDULUS CHRYSOTUS* (CYPRINODONTIFORMES: FUNDULIDAE), FROM ARKANSAS** Chris T. McAllister¹, Henry W. Robison², and Thomas M. Buchanan³ ¹Department of Biology, Angelo State University, San Angelo, TX 76909 ²Department of Biology, Southern Arkansas University, Magnolia, AR 71754 ³Department of Biology, University of Arkansas-Fort Smith, Fort Smith, AR 72913

Zoology I

Derby Room 016

- 8:00 am **OBSERVATION OF AN UNUSUAL PREY ITEM DELIVERED TO AN EASTERN BLUEBIRD NEST** Sarah A. De Viney, Richard J. Baxter and Thomas S. Risch Arkansas State University, P.O. Box 599, State University, AR 72467
- 8:15 am **PRELIMINARY RESULTS OF SURVEYS FOR WINTERING SMITH'S LONGSPURS AT AIRPORTS ACROSS ARKANSAS** William C. Holimon¹ and Catherine W. Rideout² ¹Arkansas Natural Heritage Commission, 1500 Tower Building, 323 Center Street, Little Rock, AR 72201 ²Arkansas Game and Fish Commission, #2 Natural Resources Drive, Little Rock, AR 72205

Arkansas Academy of Science

8:30 am **DOCUMENTATION OF THE FIRST KNOWN OCCURRENCE OF BROAD-BILLED HUMMINGBIRD (*CYNANTHUS LATIROSTRIS*) IN ARKANSAS** Robert H. Doster¹, Dan Scheiman², Max D. Parker³, E. Pershing Floyd³, Kenny Nichols³ and LaDonna Nichols³ ¹U.S. Department of the Interior, Bureau of Reclamation, 555 Broadway Ave. NE, Suite 100, Albuquerque, NM 87102 ²Audubon Arkansas, 201 East Markham St., Suite 450, Little Rock, AR, 72201 ³Arkansas Audubon Society, 14300 Chenal Pkwy., #7473, Little Rock, AR 72211

8:45 am **SPERM MORPHOLOGY AND MORPHOMETRICS IN THE RINGED SALAMANDER, *MBYSTOMA ANNULATUM* (CAUDATA: AMBYSTOMATIDAE), USING SCANNING ELECTRON MICROSCOPY** Stanley E. Trauth¹, Malcolm L. McCallum² and Joseph R. Milanovich¹ ¹Department of Biological Sciences, Arkansas State University, P.O. Box 599, State University, AR 72467 ²Department of Biological Sciences, Texas A&M University-Texarkana, 2600 Robison Rd., Texarkana, TX 75501

9:00 am **A PRELIMINARY CHECKLIST OF THE MOTHS (LEPIDOPTERA) OF CLARK COUNTY, ARKANSAS** Renn Tumlinson and Kristen Benjamin Department of Biology, Henderson State University, Arkadelphia, AR 71999

Botany Derby Room 023

8:00 am **THE VASCULAR FLORA OF THE SOUTH FORK NATIVE PLANT PRESERVE, VAN BUREN COUNTY, ARKANSAS** Theo Witsell¹ and Brent Baker² ¹Arkansas Natural Heritage Commission, 1500 Tower Building, 323 Center Street, Little Rock, AR 72201 ²Department of Biology, Lewis Science Center, University of Central Arkansas, 201 Donaghey Avenue, Conway, AR 72035

8:15 am **CHINESE FLAME TREE (*KOELREUTERIA BIPINNATA* FRANCH., SAPINDACEAE) NEW TO THE ARKANSAS FLORA** Nicole Freeman, Sara Melancen and Brett Serviss Department of Biology, Henderson State University, Arkadelphia, AR 71999-0001

8:30 am **A PRELIMINARY INVESTIGATION INTO THE OCCURRENCE, ESTABLISHMENT, AND BIOLOGY OF SEVEN, NON-NATIVE, WOODY ANGIOSPERMS IN SOUTHWEST ARKANSAS** Sara Melancen, Nicole Freeman, Johnathan Fuell, Allen Leible and Brett E. Serviss Department of Biology, Henderson State University, Arkadelphia, AR 71999-0001

8:45 am **STATUS OF WOLF'S SPIKERUSH (*ELEOCHARIS WOLFII*), CYPERACEAE, IN ARKANSAS AND NORTH AMERICA** Theo Witsell¹ and Paul McKenzie² ¹Arkansas Natural Heritage Commission, 1500 Tower Building, 323 Center Street, Little Rock, AR 72201 ²U.S. Fish and Wildlife Service, 608 E. Cherry Street, Room 200, Columbia, MO 65201-7712

Session IV: Saturday April 8 2006, 9:30 am – 10:45 am

Physics/Engineering II Derby Room 009

9:30 am **SAFETY OF A RED DIODE LASER SOURCE USED IN FETAL RETINAL STIMULATION STUDIES** Al Adams Department of Physics and Astronomy, University of Arkansas at Little Rock, 2801 South University Ave, Little Rock, AR 72204

9:45 am **UNDERSTANDING GLOBAL POSITIONING SYSTEM LIMITATIONS: A CASE STUDY OF MAPPING AND SURVEY GRADE GPS** Buren B. DeFee, II and Chris Stuhlinger University of Arkansas at Monticello, School of Forest Resources, P.O. Box 3468, Monticello, AR 71656

10:00 am **AC IMPEDANCE SPECTROSCOPY IN SOLID SOLUTIONS OF CuXFeI-XTAC** Stuart Hutton and Yagya Regmi Science Division, Lyon College, Batesville AR 72503

10:15 am **VARIATIONAL SYMMETRIES AND CONSERVATION LAWS IN LINEARIZED GRAVITY** Balraj Menon Department of Physics and Astronomy, University of Central Arkansas, Conway, AR 72035

Aquatic Biology II

Derby Room 011

9:30 am **AQUATIC MACROINVERTEBRATES OF THE STRAWBERRY RIVER SYSTEM, NORTH CENTRAL ARKANSAS** George L. Harp¹ and Henry W. Robison² ¹Department of Biological Sciences, Arkansas State University, AR 72467 ²Department of Biology, Southern Arkansas University, Magnolia, AR 71754-9354

9:45 am **BIOMASS DYNAMICS OF *TIPULA* (INSECTA: DIPTERA) IN FORESTED STREAMS OF THE INTERIOR HIGHLANDS, ARKANSAS** S. B. McCord, A. D. Christian, and R. S. Grippo Department of Biological Sciences, Arkansas State University, State University, AR 72467

10:00 am **INVESTIGATIONS ON THE LEECHES OF ARKANSAS** William E. Moser¹, Donald J. Klemm², Dennis J. Richardson³, Benjamin A. Wheeler⁴, Stanley E. Trauth⁵ and Bruce A. Daniels⁶ ¹Department of Invertebrate Zoology, P.O. BOX 37012 National Museum of Natural History, Smithsonian Institution, Washington, DC 20013-7012 ²Ecosystems Research Branch (MS-642), U.S. Environmental Protection Agency, Cincinnati, OH 45268-0001 ³Quinnipiac University, 275 Mount Carmel Avenue, Campus Box 71, Hamden, CT 06518 ⁴Arkansas State University, Environmental Sciences Program, P.O. Box 847, State University, AR 72476 ⁵Arkansas State University, Department of Biological Sciences, State University, AR 72467 ⁶Smithsonian Institution, Office of Information Technology, PO Box 37012, Washington, DC 20013-7012

10:15 am **THE CAJUN DWARF CRAWFISH (*CAMBARELLUS SHUFELDTII*): AN INTERMEDIATE HOST FOR *SOUTHWELLINA DIMORPHA* (ACANTHOCEPHALA)** Dennis J. Richardson¹ and William F. Font² ¹Quinnipiac University, Box 71, 275 Mt. Carmel Avenue, Hamden, CT 06518 ²Department of Biological Sciences, Southeastern Louisiana University, Hammond, Louisiana 70402

10:30 am **STATUS AND DISTRIBUTION OF THE ARKANSAS DARTER (*ETHEOSTOMA CRAGINI*) IN ARKANSAS** Brian K. Wagner and Mark D. Kottmyer Arkansas Game and Fish Commission, 2 Natural Resource Drive, Little Rock, AR 72205

Zoology II

Derby Room 016

9:30 am **DISCOVERY OF A DICEPHALIC WESTERN DIAMONDBACK RATTLESNAKE, *CROTALUS ATROX* (SERPENTES: VIPERIDAE), FROM WEST TEXAS, WITH COMMENTS ON OTHER MONSTERS** Chris T. McAllister¹ and Van Wallach² ¹Department of Biology, Angelo State University, San Angelo, TX 76909 ²Museum of Comparative Zoology, Harvard University, Cambridge, MA 02138

Arkansas Academy of Science

9:45 am **DISTRIBUTION AND STATUS OF THE PEPPERED SHINER, *NOTROPIS PERPALLIDUS* HUBBS, IN ARKANSAS AND OKLAHOMA.** Henry W. Robison Department of Biology, Southern Arkansas University, Magnolia, AR 71754-9354

10:00 am **NEW DISTRIBUTIONAL RECORDS FOR LAMPREYS (PETROMYZONTIDAE) FROM ARKANSAS** Renn Tumlinson¹, Henry W. Robison² and James Petersen³ ¹Department of Biology, Henderson State University, Arkadelphia, AR 71999 ²Department of Biology, Southern Arkansas University, Magnolia, AR 71754 ³U. S. Geological Survey, Little Rock, AR 70000

10:15 am **GEOGRAPHIC DISTRIBUTION AND HARVEST DYNAMICS OF THE EASTERN SPOTTED SKUNK IN ARKANSAS** D. Blake Sasse¹ and Matthew E. Gompper² ¹Arkansas Game and Fish Commission, Little Rock, AR 72205 ²Department of Fisheries and Wildlife Sciences, University of Missouri, Columbia, MO 65211

10:30 am **NOTES ON AN URBAN POPULATION OF THE WESTERN LESSER SIREN (*SIREN INTERMEDIA* NETTINGI), WITH RESPECT TO SIZE, ACTIVITY PERIODS, AND ECOLOGICAL ASSOCIATES** Jacob A. Sawyer and Stanley E. Trauth Department of Biological Sciences, Arkansas State University, State University, AR 72467-0599

POSTER PRESENTATION ABSTRACTS

Poster 1 **ENDONUCLEASE DEFICIENCY AS A NEW MARKER OF HUMAN BREAST CANCER PROGRESSION** Stanley O. Abiri, Xiaoyan Yin, William H. Woods, Sudhir V. Shah and Alexei G. Basnakian Philander Smith College, Little Rock, AR 72202 University of Arkansas for Medical Sciences & Central Arkansas Veterans Healthcare System, Little Rock, AR 72205

Poster 2 **A STUDY OF ARKANSAS DRINKING WATER CONTAMINATION BY MICROENVIRONMENT IN HOME WATER FILTERS** Nathan Avaritt and Olga Tarasenko Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204

Poster 3 **DENSITY FUNCTIONAL STUDIES OF NITROSYL METALLOPORPHYRIN COMPLEXES** John P. Graham and Robbie F. Davis Department of Physical Science, Arkansas Tech University, Russellville, AR 72801

Poster 4 **ROTATIONAL BARRIERS IN TRANSITION METAL CARBENE COMPLEXES** John P. Graham and Robbie F. Davis Department of Physical Science, Arkansas Tech University, Russellville, AR 72801

Poster 5 **NUCLEAR RECEPTOR REGULATION OF XENOBIOTIC DETOXIFICATION IN THE NEMATODE *C. ELEGANS*** Allyn Dodd, Doug Rinehart and Tim Lindblom Lyon College, Science Division, Batesville, Arkansas 72501

Poster 6 **GENOMIC ANALYSIS CONFIRMS LOWER NUMBERS OF DRUG METABOLISM ENZYMES IN *BRUGIA MALAYI* COMPARED TO *CAENORHABDITIS ELEGANS*** Chris Estes and Tim Lindblom Lyon College, Science Division, 2300 Highland Road, Batesville, AR 72501

Poster 7 **A RELIABLE, INEXPENSIVE METHOD FOR CREATING SAMPLES OF KNOWN C AND N CONCENTRATIONS FOR USE IN DRY COMBUSTION C-N ANALYZERS** Robert L. Ficklin¹, Russell I. Dresbach² and Joshua D. Richardson¹ ¹University of Arkansas - Monticello, Arkansas Forest Resources Center, School of Forest Resources, P.O. Box 3468, Monticello, AR 71656 ²University of Missouri - Columbia, Department of Civil and Environmental Engineering, Soil Characterization Laboratory E2509, Columbia, MO 65201

Poster 8 **UPDATED LIST OF THE ANTS OF ARKANSAS** David M. General and Lynne C. Thompson University of Arkansas at Monticello, School of Forest Resources, Arkansas Forest Resources Center, Monticello AR 71656

Poster 9 **A COMPARISON OF EMG DURING A NORMAL SUBJECT'S VS. A SUBJECT WITH AN INCOMPLETE SPINAL CORD INJURY'S GAIT** Shivan Haran¹, Shawn M. Drake² and Valerie Kerperien² ¹College of Engineering; ²MPT Program, Programs in Physical Therapy, College of Nursing and Health Professions, Arkansas State University, State University (Jonesboro), AR 72467

Poster 10 **RAMAN SPECTROSCOPY OF JSC MARS-1 SIMULATED MARTIAN DUST** Franklin D. Hardcastle¹, and Alexandru S. Biris² ¹Department of Physical Sciences, Arkansas Tech University, Russellville, AR 72801 ²University of Arkansas at Little Rock, UALR Center of Nanotechnology, Graduate Institute of Technology, 2801 S. University Ave., Little Rock, Arkansas 72204

Poster 11 **RUTHENIUM COMPLEXES OF NOVEL THIOSEMICARBAZONES: SYNTHESIS, CHARACTERIZATION, AND ANTIMICROBIAL ACTIVITY** Floyd A. Beckford and Amon Holt Science Division, Lyon College, Batesville, AR 72501

Poster 12 **ISOLATION OF AN RNA BINDING PROTEIN INVOLVED IN TRANSLATIONAL CONTROL IN *XENOPUS* OOCYTES** Justin Holt¹, Robert Frank¹, Angus MacNicol² and Robert Gregerson¹ ¹Lyon College, Batesville, AR 72201 ²University of Arkansas for Medical Sciences, Little Rock, AR 72205

Poster 13 **POPULATION DEMOGRAPHICS OF THE ALLIGATOR SNAPPING TURTLE (*MACROCHELYS TEMMINCKII*): EVIDENCE FOR PAST OVEREXPLOITATION AND PRESENT RECOVERY** Christopher A. Howey and Stephen A. Dinkelacker University of Central Arkansas, Department of Biology, Conway, Arkansas, 72035

Poster 14 **HERA: MAKING THE ASTEROID/METEORITE CONNECTION WITH A MISSION TO AN ASTEROID** Larry A. Lebofsky and Derek W. G. Sears Arkansas Center for Space and Planetary Sciences, University of Arkansas, Fayetteville, Arkansas 72701

Poster 15 **ESTRADIOLS' RELAXATION KINETICS OF PORCINE CORONARY ARTERIES** Sean Necessary, Tiffany Mattingly, Christi Lewis and Brent Hill University of Central Arkansas, Department of Biology, 201 Donaghey, Conway, AR 72035

- Poster 16 RECOMBINANT VARICELLA VACCINES INDUCE IMMUNE RESPONSES TO SIMIAN IMMUNODEFICIENCY VIRUS ANTIGENS IN IMMUNIZED ANIMALS** Yang Ou¹, Vicki Traina-Dorge² and Wayne L. Gray¹ ¹Department of Microbiology and Immunology, UAMS, Little Rock, AR 72205 ²Tulane National Primate Research Center, Covington, LA 70433
- Poster 17 CURRENT RESULTS OF ECOPOESIS EXPERIMENTS IN THE SHOT MARTIAN ENVIRONMENT SIMULATOR** Carl Rector¹, Paul Todd², Penelope J. Boston³, John Boling¹, Kathy A. Campbell⁴, Tiffany McSpadden¹, Laura McWilliams¹, Jaime Warrington¹ and David J. Thomas¹ ¹Lyon College, Science Division, Batesville, AR 72501 ²Space Hardware Optimization Technology, Inc., Greenville, IN 47124 ³New Mexico Institute of Mining and Technology, Department of Earth and Environmental Science, Socorro, NM 87801 ⁴Cedar Ridge High School, Newark AR 72562
- Poster 18 BIOTECHNOLOGY ADVANCES FOR ARKANSAS RICE VARIETIES (*ORYZA SATIVA* L.)** Moytri RoyChowdhury, Audrei Dabul, John Hubstenberger and Gregory Phillips Arkansas BioSciences Institute at Arkansas State University, State University AR-72467
- Poster 19 EVALUATION OF CROSS POLLINATION OF ZEPHYRANTHES AND HABRANTHUS SPECIES AND HYBRIDS** Moytri RoyChowdhury and John Hubstenberger Arkansas BioSciences Institute at Arkansas State University, State University, AR-72467
- Poster 20 THE ARKANSAS CENTER FOR SPACE AND PLANETARY SCIENCES** Derek W. G. Sears, Hazel Sears and Jessica Park Arkansas Center for Space and Planetary Sciences, University of Arkansas, Fayetteville, Arkansas 72701
- Poster 21 PAX6 REGULATION OF GLIOMA CELL VULNERABILITY UNDER STRESS ENVIRONMENT** LaTarsha Stanley, Jason Y. Chang and Yi-Hong Zhou Department of Neurobiology and Developmental Science, UAMS, Little Rock, AR
- Poster 22 TESTING THE OXYGEN PARADOX WITH ANTIOXIDANT-DEFICIENT CYANOBACTERIA** David J. Thomas, John Boling, Tiffany McSpadden, Carl Rector, Christy L. Schuchardt, CaSandra J. Spurlock and Jaime Warrington Science Division, Lyon College, Batesville, Arkansas 72501
- Poster 23 GREEN CHEMISTRY: FROM RICE HULLS TO POLYFURAN** Carol J. Trana, Matthew McConnell, Adam Green, James Lindley, Lindsay Rymes, Shuneize Lowe, Maranda Henley, Kelley Sayyar, Walter E. Godwin and Rose McConnell School of Math & Natural Sciences, University of Arkansas at Monticello, Monticello, AR 71656.
- Poster 24 EXPOSURE TO SUB-LETHAL DOSE OF MALATHION IS MORE DETRIMENTAL TO BRAIN CHOLINESTERASE OF MATURE, REPRODUCTIVE MINNOW (*PIMEPHALES PROMELAS*) THAN THE YOUNG** Eric Duncan¹, Jonathan Treece² and Malathi Srivatsan² ¹University of North Carolina at Pembroke, Pembroke, NC 28372 and ²Department of Biological Sciences, Arkansas State University, Jonesboro, AR 72401