

1995

19th Annual Meeting, 1995. Program

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PROGRAM
Arkansas Academy of Science
Seventy-Ninth Annual Meeting
April 7-8, 1995
University of Arkansas at Pine Bluff

SCHEDULE OF EVENTS

Friday, April 7, 1995

8:30 a.m. - 10:30 a.m.	Executive Committee	Research Center, Board Room
10:00 a.m. - 2:00 p.m.	Registration	HPER, Lobby
11:00 a.m. - 12:00 p.m.	First Business Meeting	HPER, Lecture Hall
11:00 a.m. - 5:00 p.m.	Exhibits	HPER, Lobby
11:30 p.m. - 5:00 p.m.	Slide Preview	HPER, Room SPV
2:30 p.m. - 3:00 p.m.	Refreshments	HPER, Lobby Concession Area

PAPER SESSIONS

1:00 p.m. - 4:45 p.m.	Chemistry and Chemical Engineering I	HPER, Lecture Hall
1:00 p.m. - 4:45 p.m.	Zoology	HPER, Room 304
2:15 p.m. - 4:00 p.m.	Physics, Mathematics and Engineering I	HPER, Room 305
3:15 p.m. - 5:00 p.m.	Ecology and Environmental Science	HPER, Room 306
2:15 p.m. - 4:15 p.m.	Biomedical Sciences and Microbiology	HPER, Room 308
2:00 p.m. - 4:30 p.m.	Poster Session	HPER, Lobby
5:00 p.m.	Arkansas Biology Department Chairperson Meeting	HPER, Room 307
6:30 p.m.	Banquet	L.A. Davis Student Union, Ballroom

BANQUET SPEAKER

Dr. Luther L. Williams
 Assistant Director
 Education and Human Resources
 National Science Foundation (NSF)
"Science Education and Research for the 21st Century"

Saturday, April 8, 1995

7:45 a.m. - 11:00 a.m.	Slide Preview	HPER, Room SPV
7:45 a.m. - 8:15 a.m.	Refreshments	HPER, Lobby
8:00 a.m. - 10:00 a.m.	Registration	HPER, Lobby
8:00 a.m. - 1:00 p.m.	Exhibits	HPER, Lobby
9:45 a.m. - 10:30 a.m.	Refreshments	HPER, Lobby
12:00 p.m. - 1:30 p.m.	Second Business Meeting & Awards	HPER, Lecture Hall

PAPER SESSIONS

8:30 a.m. - 11:15 a.m.	Physics, Mathematics and Engineering II	HPER, Room 305
8:30 a.m. - 11:45 a.m.	Botany	HPER, Room 306
8:30 a.m. - 11:45 a.m.	Fisheries and Aquatic Biology	HPER, Room 307
9:00 a.m. - 10:45 a.m.	Chemistry and Chemical Engineering II	HPER, Lecture Hall
11:00 a.m. - 11:30 a.m.	Science Education	HPER, Lecture Hall

TOURS

(Meet in HPER, Arena)

Friday, April 7, 1995

1:00 p.m. - 2:30 p.m.	Keepers of the Spirit Exhibit
3:00 p.m. - 4:30 p.m.	Keepers of the Spirit Exhibit
2:30 p.m. - 4:00 p.m.	Fisheries Biology Facility

Saturday, April 8, 1995

9:00 a.m. - 10:30 a.m.	Fisheries Biology Facility
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SECTION PROGRAMS

* Undergraduate ** Graduate

CHEMISTRY AND CHEMICAL ENGINEERING I

HPER Complex Lecutre Hall

Chairperson: Dr. Roger E. Koeppe, II, University of Arkansas at Fayetteville

TIME TOPIC

- 1:00 ***Ginger J. Brown**¹, Kevin D. Phelan² and Cynthia J.M. Kane². Department of Biology¹, Hendrix College, Conway, AR 72032 and Department of Anatomy², University of Arkansas for Medical Sciences, Little Rock, AR 72205. TRANSFORMING GROWTH FACTOR- β CONTROLS SURVIVAL OF CENTRAL NERVOUS SYSTEM NEURONS.
- 1:15 **(**Anthony R. Jude**, Denise B. Greathouse, Roger E. Koeppe II, +Subham Basu, +Lyndon L. Providence, +Olaf S. Andersen) Dept. Chem. Biochem., Univ. of Arkansas, Fayetteville, AR, 72701; +Dept. Physiol. Biophys., Cornell Univ. Medical College, New York, NY, 10021. EFFECTS OF β -BRANCHED AMINO ACIDS AT POSITIONS 10, 12, AND 14 OF GRAMICIDIN CHANNELS.
- 1:30 ***Antonie Rice**, Lawrence D. Fitz, Gordon L. Eggleton and Richard B. Walker, University of Arkansas at Pine Bluff, Chemistry Department, Pine Bluff, AR 71601. EVIDENCE FOR COPPER COMPLEXATION OF AN OXAZOLIDINE FORMED FROM (-) EPHEDRINE AND SALICYLALDEHYDE.
- 1:45 **Frank L. Setliff**, John W. Hawley, and Alan D. Toland, Department of Chemistry, University of Arkansas at Little Rock, Little Rock, AR 72204. HAMMETT CORRELATIONS OF CARBONYL ¹³C CHEMICAL SHIFTS IN A SERIES OF N-(4-SUBSTITUTED PHENYL)-6-CHLORO-5-FLUORONICOTINAMIDES.
- 2:00 ***Tim Bullard**, Reynolds Metals Company, P.O. Box 97, Bauxite, AR 72011 and Department of Chemistry, University of Arkansas at Little Rock, Little Rock, AR 72204; and Ali U. Shaikh, Department of Chemistry, University of Arkansas at Little Rock, Little Rock, AR 72204. SIMULTANEOUS ANALYSIS OF MAJOR, MINOR AND TRACE METALS IN BAUXITE ORE AND OTHER GEOLOGICAL MATERIALS.
- 2:15 ***Brandon Kemp**, Dr. Robert Engelken, Arif Raza, Arees Siddiqui, and Omer Mustafa, Optoelectronic Materials Research Laboratory, Department of Engineering, Arkansas State University, State University, Jonesboro, AR 72467. DIAGNOSTICS OF CdTe ELECTRODEPOSITION BY REST POTENTIAL VOLTAMMETRY
- 2:30 ***Arif Raza**, Dr. Robert Engelken, Brandon Kemp, Arees Siddiqui and Omer Mustafa, Optoelectronic Materials Research Laboratory, Department of Engineering, Arkansas State University, P.O. Box 1740, State University, Jonesboro, AR 72467. MOLTEN SALT ELECTROLYTES FOR ELECTRODEPOSITION OF CADMIUM TELLURIDE FILMS.
- 2:45 BREAK
- Chairperson: Dr. Richard B. Walker, University of Arkansas at Pine Bluff
- 3:00 **Scott W. Reeve**. OPTIMIZATION AND DISGNOSTIC MEASUREMENTS FOR A DIRECT CURRENT ARCJET DIAMOND CHEMICAL VAPOR DEPOSITION REACTOR.

- 3:15 ****Gopi Sirineni**, Dr. H.A. Naseem, Dr. A.P. Malshe and Dr. W.D. Brown HIDEK, University of Arkansas, Fayetteville, AR 72701. POLISHING OF CVD-DIAMOND SUBSTRATES USING REACTIVE ION ETCHING.
- 3:30 **Quazi Galib Samdani**, Hameed A. Naseem and W.D. Brown Department of Electrical Engineering, University of Arkansas, University Court, Fayetteville, AR 72701. CHARACTERIZATION OF CADMIUM SULPHIDE FILMS DEPOSITED BY CHEMICAL BATH METHOD.
- 3:45 *W. S. Taylor, **Daniel Barnas**, and B.K. Alexander, Department of Chemistry, University of Central Arkansas, Conway, AR 72035. CHARACTERIZATION OF EXCITED STATE METAL ION PRODUCTION BY A SPUTTERING GLOW DISCHARGE VIA ELECTRONIC STATE CHROMTOGRAPHY.
- 4:00 **T.E. Ezell** and Darsey, J. A., University of Arkansas at Little Rock, Little Rock, AR 72204. Department of Chemistry, University of Arkansas at Little Rock, AR. SCF-MO CONFORMATIONAL ANALYSIS OF POLYCROCONAINE.
- 4:15 ***Lorie L. Rayburn**, Department of Chemistry, University of Arkansas at Little Rock, AR. CONGORMATIONAL STUDIES OF ORTHO- AND META-NITRO ISOMERS AND ORTHO-SUBSTITUED ANALOGUES OF DANTROLENE USING AB INITIO SCF-MO AND MOLECULAR PROCEDURES.
- 4:30 ***Hugh Simmons, III**¹, H.J. Irving², M. Wear², I. Chowdhury¹, S. Khan¹, E. Williams¹, W.M. Willingham¹, and J.R.J. Sorenson². ¹University of Arkansas at Pine Bluff, Research Center, Box 4094, Pine Bluff, AR 71601. ²University of Arkansas for Medical Sciences, College of Pharmacy, Slot 522, 4301 West Markham, Little Rock, AR 72205. 5-SULFONAMYL SALICYLATOCOPPER (II) PROTECTS C57BL/6 MICE FROM IONIZING RADIATION.

ZOOLOGY

HPER Complex Room 304

Chairperson: Dr. Lynita M. Cooksey, Arkansas State University, Jonesboro

TIME TOPIC

- 1:00 **S. L. Bearden**, L. M. Cooksey, Dept. of Biological Sciences, Arkansas State University, State University, AR 72467, and L. R. Hilburn, Black River Technical College, Pocahtontas, AR 72455. ELECTROPHORETIC DETERMINATION OF SIBLING SPECIES OF THE *ANOPHELES QUADRIMACULATUS* SPECIES COMPLEX IN NORTHEASTERN ARKANSAS.
- 1:15 Ali M. S. Shams, Dewey H. Sifford and **Bob D. Johnson** College of Arts and Sciences, Arkansas State University, State University, AR 72467. 5'-NUCLEOTIDASE AND THROMBIN-LIKE ACTIVITIES OF SELECTED CROTALID VENOMS.
- 1:30 **Jennifer R. Powell**¹, Charlotte L. Ownby², Jeffrey E. Fletcher³ and Keith Sutton¹, ¹Department of Biology, Hendrix College, Conway, AR 72032; ²Department of Physiological Sciences, Oklahoma State University, Stillwater, OK 74078; ³Department of Anesthesiology, Hahnemann University, Philadelphia, PA 19102. BEE (*APILIERA*) VENOMELITT IN CAUSES MYONECROSIS IN MICE.

- 1:45 **David H. Jamieson**¹ and Larry A. Olson², ¹ASU-Beebe (Newport Campus), Biology Department, 7648 Victory Blvd., Newport, AR 72112. ²Arkansas State University, Department of Biological Science, State University, AR 72467. **THE RECENT ESTABLISHMENT OF THE ASIAN TIGER MOSQUITO (*Aedes albopictus*) IN INDEPENDENCE COUNTY, ARKANSAS.**
- 2:00 ***David Eller**, Renn Tumblison, and Todd Wiebers, Departments of Biology and Psychology, Henderson State University, Arkadelphia, AR 71999. **A FIELD STUDY OF SOLVING THE DETOUR PROBLEM IN TOADS (*Bufo woodhousii*).**
- 2:15 ***David Eller**, Diane Taylor, Mitzi Hunt, Todd Wiebers, and Renn Tumblison, Departments of Biology and Psychology, Henderson State University, Arkadelphia, AR 71999. **A LABORATORY STUDY OF SOLVING THE DETOUR PROBLEM IN TOADS (*Bufo woodhousii*).**
- 2:30 Break
- 2:45 **Peggy Rae Dorris**, Henry W. Robison, and Chris Carleton, Henderson State University, Arkadelphia, AR 71999, Southern Arkansas University, Magnolia, AR 71753, and University of Arkansas, Fayetteville, AR 72701. **ADDITIONAL RECORDS OF ARKANSAS SPIDERS COLLECTED FROM OUACHITA NATIONAL FOREST SUBSTRATE.**
- 3:00 **Risa Parker** and Peggy Rae Dorris, Henderson State University, Box 7544, Arkadelphia, AR 71999-0001. **ADDITIONS TO THE LIST OF SCHIZOCOSA (FAMILY LYCOSIDA) FOUND IN ARKANSAS.**
- 3:15 **M. Victoria McDonald**, University of Central Arkansas, Department of Biology, University of Central Arkansas, Conway, AR 72035-0001, USA. **KENTUCKY WARBLER BEHAVIOR AND PATERNITY STUDIES.**
- 3:30 William M. Shepherd¹, Douglas A. James², and Max D. Parker³, ¹Arkansas Natural Heritage Commission, 1500 Tower Bldg., 323 Center St., Little Rock, AR 72201; ²Dept. of Biological Sciences, University of Arkansas, Fayetteville, AR 72701; and ³2426 S. Main St., Malvern, AR 72104. **WINTER STATUS OF HENSLOW'S SPARROW (*Ammodramus henslowii*) IN ARKANSAS.**
- 3:45 Chris T. McAllister and **Stanley E. Trauth**, Division of Natural and Applied Sciences, Cedar Valley College, Lancaster, TX 75134 and Department of Biological Sciences, Arkansas State University, State University, AR 72467. **VERTEBRATE FAUNA OF MINES AT GOLD MINE SPRINGS, INDEPENDENCE COUNTY, ARKANSAS.**
- 4:00 **Stanley E. Trauth**, and Chris T. McAllister, Department of Biological Sciences, Arkansas State University, State University, AR 72467 and Division of Natural and Applied Sciences, Cedar Valley College, Lancaster, TX 75134. **VERTEBRATE PREY OF SELECTED ARKANSAS SNAKES.**
- 4:15 **Stanley E. Trauth**, Robert L. Cox, Jr¹, J.D. Whilhide, and Hilary Worley, Department of Biological Sciences, Arkansas State University, State University, AR 72467-0599 (¹RLC-deceased). **EGG MASS CHARACTERISTICS OF TERRESTRIAL MORPHS OF THE MOLE SALAMANDER, *Ambystoma talpoideum* (CAUDATA: AMBYSTOMATIDAE), FROM NORTHEASTERN ARKANSAS AND COMPARISONS WITH OTHER *AMBYSTOMA* SPECIES.**

PHYSICS, MATHEMATICS AND ENGINEERING I
 HPER Complex Room 305

Chairperson: Dr. Keith Hudson, University of Arkansas at Little Rock

- | TIME | TOPIC |
|------|---|
| 2:15 | * Christopher Paul Sheesley , Rahul Mehta, William Victor Slaton, Terry Johnson, John McKay, Anthony E. Portoni, Department of Physics, University of Central Arkansas, Conway, AR 72035 and J.L. Duggan, Justin M. Sanders, Department of Physics, University of North Texas, Denton, TX 76203. RUTHERFORD AND NON-RUTHERFORD SCATTERING USING A PROTON BEAM. |
| 2:30 | * William Victor Slaton , Rahul Mehta, Terry Johnson, John McKay, Anthony E. Portoni, Christopher Paul Sheesley, Department of Physics, University of Central Arkansas, Conway, AR 72035 and J.L. Duggan and Justin M. Sanders, Department of Physics, University of North Texas, Denton, TX 76203-4353. NUCLEAR REACTION STUDIED USING PROTONS ON LITHIUM FLUORIDE AND CARBON TARGETS. |
| 2:45 | Felix Tendeku , Department of Industrial Technology, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601. RETRIEVAL OF ATMOSPHERIC TURBIDITY COEFFICIENT AND WATER VAPOR CONTENT FROM SOLAR IRRADIANCE DATA. |
| 3:00 | L. D. Klotz , J.D. Wilson, University of Arkansas at Little Rock, 2801 South University, Little Rock, AR 72203. DIGITAL IMAGING TECHNIQUES FOR MEASURING AGGREGATE SHAPE. |
| 3:15 | ** Morgan T. Burks , U. of Arkansas at Little Rock and Lawrence Berkeley Laboratory, Spiros Margetis and Howard Wieman, Lawrence Berkeley Laboratory, MS 70A_3307, Berkeley, CA 94720, and W.J. Braithwaite, Univ. of Arkansas, Little Rock, AR72204. DETERMINING THE FEASIBILITY OF USING DIMETHYL-ETHER AS A DRIFT GAS IN A MICRO-STRIP TIME PROJECTION CHAMBER. |
| 3:30 | Jianming Xu and Paul C. McLeod, University of Arkansas at Little Rock, Department of Applied Science HIGH SPEED SPECTRAL MEASUREMENT OF TRANSIENT OPTICAL EMISSION. |
| 3:45 | Siripong Malasri and Jennifer R. Martin, Department of Civil Engineering, Christian Brothers University, Memphis, TN 38104. CONSTRUCTION RESOURCE ALLOCATION USING A GENETIC ALGORITHM. |

ECOLOGY AND ENVIRONMENTAL SCIENCE
 HPER Complex Room 306

Chairperson: Dr. Nick Brown, University of Arkansas at Monticello

- | TIME | TOPIC |
|------|---|
| 3:15 | Holly Hill , Peggy Rae Dorris, and Lynne C. Thompson, Henderson State University, Arkadelphia, AR 71999-0001, and University of Arkansas at Monticello, Monticello, AR 71655. THE RELATIONSHIP OF SPIDERS TO DIFFERENT FORESTRY TREATMENTS AND SUCCESSION IN SOUTHEAST ARKANSAS BETWEEN 1984 AND 1988. |
| 3:30 | Nick Brown , Arkansas Forest Resources Center, UAM School of Forest Resources, Monticello, AR. AN INDEX OF FOREST INTEGRITY FOR UPLAND COASTAL PLAINS ECOSYSTEMS. |
| 3:45 | R. Kluender, D. Lortz and W. McCoy, University of Arkansas at Monticello. School of Forest Resources, Monticello, AR 71656. B. Stokes and J. Klepac, USDA Forest Service, Southern Forest Experiment Station, Devall Drive, Auburn University, Alabama 36849. FOREST HARVESTING COSTS AND PRODUCTIVITY IN ARKANSAS. |

- 4:00 ****Celia Fern Ison**, University of Nebraska State Museum, University of Nebraska, Lincoln, NE. **BASELINE DATA FOR TURKEY RIDGE RESEARCH NATURAL AREA, ST. FRANCIS NATIONAL FOREST, ARKANSAS.**
- 4:15 **Robert Cordova**, and Bobby Makin, Division of Engineering, Arkansas Department of Health, 4815 W. Markham, Little Rock, AR 72205. **ARKANSAS' WELLHEAD PROTECTION PROGRAM, WITH DISCUSSION OF DELINEATION METHODOLOGY.**
- 4:30 ****D. L. Moore**, and F.W. Spiegel, Department of Biological Sciences, University of Arkansas at Fayetteville, AR 72701. **MICROPHENOMENON IN NATURE: PROTOSTELID ECOLOGY.**
- 4:45 ***Jeffery Moran**, Janet Lanza and Daniel Brown, Department of Biology, University of Arkansas at Little Rock, 2801 S. University, Little Rock, AR 72204. **FLY PREFERENCES FOR AND NUTRITIONAL BENEFITS OF NECTAR-BONE AMINO ACIDS.**

BIOMEDICAL SCIENCES AND MICROBIOLOGY

HPER Complex Room 308

Chairperson: Dr. Joseph Igietseme, University of Arkansas for Medical Sciences

- | TIME | TOPIC |
|------|--|
| 2:15 | Joseph U. Igietseme , Ijindah M. Uriri and Roger G. Rank. Department of Microbiology and Immunology, University of Arkansas for Medical Sciences, Little Rock, AR 72205. MECHANISM OF T CELL INHIBITION OF INTRAEPITHELIAL GROWTH OF CHLAMYDIA. |
| 2:30 | Lawrence Mwasi , Department of Biology, University of Arkansas at Pine Bluff, AR. ULTRASTRUCTURAL CHANGES IN ARTHROBACTER TH-1 WHEN GROWN WITH EITHER CIS-TERPIN HYDRATE, α-TERPINEOL, OR GLUCOSE AS THE SOLE CARBON AND ENERGY SOURCE. |
| 2:45 | Joshua V. Granderson , David Stinchcomb, John Lawrence, and Gaston Griggs. Biology Department, John Brown University, Siloam Springs, AR 72761. UV-INDUCED CHROMOSOMAL ABERRATION PRODUCTION AND THE DNA REPLICATION FORK IN EUKARYOTIC CELLS. |
| 3:00 | *Brian T. Bean¹ , Chris Myers ² , Alan M. Lambowitz ² (Bruce Haggard ¹), ¹ Department of Biology, Hendrix College, Conway, AR 72032. ² Department of Molecular Genetics, The Ohio State University, Columbus, OH 43210. MUTATIONAL ANALYSIS OF AN IDIOSYNCRATIC DOMAIN OF THE NEUROSPORA MITOCHONDRIAL TYROSYL-tRNA SYNTHETASE INVOLVED IN GROUP 1 INTRON SPLICING. |
| 3:15 | **Gina Uken Trebilcock and Usha Ponnappan, Univ. of Arkansas for Medical Sciences, VA Medical Research, 4300 W. 7th, 151/LR GC-143, Little Rock, AR 72205. IMMUNE DYSREGULATION IN AGING: ROLE OF NFKB. |
| 3:30 | T. Yerokun , Heflich, R.H., Lyn-Cook, B., Jin, B. and Ringer, D.P. Department of Biology, University of Arkansas at Pine Bluff, AR 71601. The National Center for Toxicological Research, Jefferson, AR 72079 and the Oklahoma Medical Research Foundation. MOLECULAR CLONING OF A RAT HEPATIC ARYL SULFOTRANSFERASE AND USE IN A CARCINOGENESIS MODEL. |
| 3:45 | Charles Ashburn* , Nanette J. Gusick, and Wayne L. Gray. Department of Biology*, University of Arkansas at Little Rock, Little Rock, AR 72204, and Department of Microbiology and |

Immunology, University of Arkansas for Medical Sciences, Little Rock, AR 72205. **DNA SEQUENCE ANALYSIS OF THE SIMIAN VARICELLA VIRUS URACIL GLYCOSYLASE GENE.**

- 4:00 **Nanette L. Gusick**, Wayne L. Gray, Thomas M. Fletcher, and Kenneth Soike.* Department of Microbiology and Immunology, University of Arkansas for Medical Sciences, Little Rock, AR 72205. Tulane Regional Primate Research Center, Tulane University, Covington, LA 70433. **ANTIBODY RESPONSE OF AFRICAN GREEN MONKEYS INFECTED WITH SIMIAN VARICELLA VIRUS.**

POSTER SESSION

April 7, 1995

2:00 P.M. - 4:30 P.M.

HPER LOBBY

Michael A. Preston, Miriam M. Glass, Mattie M. Glover and Clifton Orr
Department of Biology, University of Arkansas at Pine Bluff
ANGUIDINE DECREASES THE CYTOTOXIC EFFECTS OF VINCISTINE AGAINST HUMAN BLADDER CANCER CELLS (253J)

Stacey M. Johnson, Jacqueline A. Potter, Miriam M. Glass, Mattie M. Glover and Clifton Orr
Department of Biology, University of Arkansas at Pine Bluff
DIFFERENTIAL CYTOTOXIC EFFECTS OF 5 FLUOROURACIL (5-Fu) AGAINST TWO HUMAN BLADDER CANCER CELL LINES

Saturday, April 8, 1995

PHYSICS, MATHEMATICS AND ENGINEERING II

HPER Complex Room 305

Chairperson: Dr. Felix Tendeku, University of Arkansas at Pine Bluff

- | TIME | TOPIC |
|------|--|
| 8:30 | *Sue Ellen McCloskey and W.J. Braithwaite, Department of Physics and Astronomy, University of Arkansas at Little Rock, 2801 S. University Ave., Little Rock, AR 72204. AN INTRODUCTORY MODULE FOR STUDENTS OF MONTE CARLO MODELING. |
| 8:45 | *Carlos A. Sanchez , Kazuhiko Murai, Jason E. Elmore, and Donald C. Wold, Department of Physics and Astronomy, University of Arkansas at Little Rock, Little Rock, AR 72204. USING FRITIOF TO MODEL NUCLEUS-NUCLEUS INTERACTIONS IN A COSMIC RAY DETECTOR. |
| 9:00 | **Doug Mauldin ,† A.A. Rollefson & W.J. Braithwaite, U of Arkansas, Little Rock, AR 72204. ENERGY-LOSS PARTICLE IDENTIFICATION IN 2-D SILICON DRIFT DETECTORS. |
| 9:15 | **Kazuhiko Murai , Carlos A. Sanchez, Jason E. Elmore, and Donald C. Wold, Department of Physics and Astronomy, University of Arkansas at Little Rock, Little Rock, AR 72204. USING GEANT TO MODEL CALORIMETER RESPONSE FOR ELECTROMAGNETIC CASCADES FROM NUCLEUS-NUCLEUS INTERACTIONS IN A COSMIC RAY DETECTOR. |
| 9:30 | **Chris S. Smith , M. Keith Hudson*, and Paul C. McLeod, Department of Applied Science, University of Arkansas at Little Rock, Little Rock, AR 72204. DESIGN AND CONSTRUCTION OF A SMALL ARMS PROPELLANT TEST UNIT. |
| 9:45 | Break |

Program

Chairperson: Dr. W.J. Braithwaite, University of Arkansas at Little Rock

- 10:00 *Wilson H. Howe, Christine A. Byrd, Amber D. Climer, and W.J. Braithwaite, University of Arkansas at Little Rock, 2801 S. University Ave., Little Rock, AR 72204. OPTIMIZING TRACKING SOFTWARE FOR A TIME PROJECTION CHAMBER.
- 10:15 *Steven Young and Mostafa Hemmati, Department of Physics, Arkansas Tech University, Russellville, AR 72801. PROFORCE WAVES: THE EFFECT OF CURRENT BEHIND THE SHOCK FRONT ON WAVE STRUCTURE.
- 10:30 *Christine Byrd, Wilson H. Howe, Amber D. Climer and W.J. Braithwaite, Department of Physics and Astronomy, University of Arkansas at Little Rock, 2801 S. University Ave., Little Rock, AR 72204. CREATION AND IMPLEMENTATION OF A CHARGED-PARTICLE TRACKING MODULE FOR A SMALL-GEOMETRY, VERTEX TIME PROJECTION CHAMBER.
- 10:45 *Amber Climer, Christina A. Byrd, Wilson H. Howe, and W.J. Braithwaite, Department of Physics and Astronomy, University of Arkansas at Little Rock, 2801 S. University Ave., Little Rock, AR 72204. USE OF EVENT DISPLAYS TO IMPROVE TRACKING IN TIME PROJECTION CHAMBERS.
- 11:00 Heather Woolverton, Department of Physics and Astronomy, and Fred Hickling and West Davis, Department of Mathematics, University of Central Arkansas, Conway, AR 72035. CRITICAL VALUES OF THE KNOT ENERGY FUNCTIONAL FOR TORUS KNOTS.

BOTANY

HPER Complex Room 306

Chairperson: Dr. Janet Lanza, University of Arkansas at Little Rock

TIME TOPIC

- 8:30 Elizabeth M. Getz and Donald E. Culwell, The University of Central Arkansas, Lewis Science Center, Conway, AR 72035. VASCULAR FLORA OF CAMP JOSEPH T. ROBINSON MILITARY BASE, NORTH LITTLE ROCK, ARKANSAS.
- 8:45 *Jennifer Burks and Janet Lanza, Biology Department, University of Arkansas at Little Rock, 2801 South University, Little Rock, AR 72204. POLLINATION BIOLOGY OF *PASSIFLORA LUTEA*.
- 9:00 **James A. Rasmussen, Frank A. Einhellig, and Angela M. Hejl, Department of Biological Sciences, Southern Arkansas University, Magnolia, AR 71753-5000, Graduate Studies and Research, Southwest Missouri State University, Springfield, MO 65804-0089, Department of Biology, University of South Dakota, Vermillion, SD 57069-2390. EFFECTS OF SELECTED FLAVONOIDS ON ISOLATED CHLOROPLASTS.
- 9:15 **Mohanjeet S. Brar, Jameel M. Al-Khayri, and Gerald L. Klingaman, Department of Horticulture and Plant Pathology, University of Arkansas, Fayetteville, AR 72701. THE EFFECT OF THIDIAZURON AND BENZYLAMINOPURINE ON SHOOT PROLIFERATION OF CARNATION.
- 9:30 *Jennifer Akin and Richard L. Meyer, University of Arkansas at Fayetteville, Department of Biological Sciences, Fayetteville, AR 72701. BIODIVERSITY OF SACCODERM AND PLACODERM DESMIDS (CONJUGATOPHYCEAE) FROM NORTHWESTERN ARKANSAS.
- 9:45 Break

Chairperson: Dr. Richard Meyer, University of Arkansas at Little Rock

- 10:00 Donald E. Culwell, University of Central Arkansas, Biology Dept., UCA, Conway, AR 72035-0001. *PILULARIA*-MORE COMMON THAN YOU THINK?
- 10:15 *Carolyn Cogburn (Joyce Hardin)¹ and A. Scott Holaday². Department of Biology¹, Hendrix College, Conway, AR 72032 and Department of Biological Sciences², Texas Tech University, Lubbock, TX 79409. THE EFFECT OF SUBOPTIMAL TEMPERATURES ON RESPIRATORY CO₂ EVOLUTION AND LEVELS OF ATP, ADP, AND PYRUVATE IN THE LEAVES OF COTTON, *GOSSYPIUM HIRSUTUM* CV COKER 312.
- 10:30 Jameel M. Al-Khayri and Edwin J. Anderson, Department of Plant Pathology, University of Arkansas, Fayetteville, AR 72701. CALUS INDUCTION AND PLANT REGION OF COMMERCIAL RICE (*ORYZA SATIVA* L.) CULTIVARS.
- 10:45 J.C. Rupe, E.A. Sutton, and C.M. Becton, Department of Plant Pathology, PS-217, University of Arkansas, Fayetteville, AR 72701. EFFECT OF TEMPERATURE AND WETNESS PERIOD ON INFECTION OF SOYBEANS BY THE SOUTHERN BIOTYPE OF THE STEM CANKER PATHOGEN.
- 11:00 James H. Peck, Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204 and W. Carl Taylor, Milwaukee Public Museum, Milwaukee, WI 53233. NEW CHECKLIST TO ARKANSAS FERNS AND FERN ALLIES.
- 11:15 Yanfei Guo, Brian Lockhart, School of Forest Resources, University of Arkansas at Monticello, Monticello, AR 71656, and John Hodges, Department of Forestry, Mississippi State University, Mississippi State, MS 39762. PREDICTION OF LEAF AREA IN INDIVIDUAL LEAVES OF CHERRYBARK OAK SEEDLINGS (*QUERCUS PAGODA*).

FISHERIES AND AQUATIC BIOLOGY

HPER Complex Room 307

Chairperson: Dr. Rebecca Lochmann, University of Arkansas at Pine Bluff

TIME TOPIC

- 8:30 Rebecca Lockmann, S.J. Parker Agricultural Experiment Station, University of Arkansas at Pine Bluff, AR. USE OF STABLE CARBON ISOTOPE RATIOS TO STUDY NUTRITION OF GOLDEN SHINERS.
- 8:45 **Kenda Flores, National Biological Service cooperative Research Unit, University of Arkansas at Fayetteville, AR. DETERMINATION OF THE BEST TECHNIQUES FOR RADIOTRACKING COOL WATER SPORT FISH IN NORTHWESTERN ARKANSAS RESERVOIRS.
- 9:00 James Johnson, National Biological Service, Arkansas Cooperative Fish and Wildlife Research Unit, University of Arkansas at Fayetteville, AR. RECREATIONAL BOAT USE OF THE BUFFALO NATIONAL RIVER, ARKANSAS, 1991 AND 1992.
- 9:15 Ronald Johnson, Department of Zoology, Arkansas State University, Jonesboro, AR. GENETIC STRUCTURE CORRELATED WITH AGE AND GROWTH OF THE LARGEMOUTH BASS POPULATION IN LAKE ASHBAUGH, ARKANSAS.
- 9:30 *Ronald Rambo, and Joseph N. Stoeckel, Department of Biological Sciences, Arkansas Tech University, Russellville, AR 72801. REPRODUCTIVE BIOLOGY OF THE OUACHITA MADTOM WITH COMPARISONS TO OTHER SPECIES.

9:45 **Billy Yann**, Caddo Hills High School, HC 65, Box 249, Norma, AR 71960; **Betty G. Cockran Crump**, USDA Forest Service, 101 Smokey Bear Lane, Glenwood, AR 71943; **John L. Harris**, Arkansas Highway Department-Environmental Division, P.O. Box 2261, Little Rock, AR 72203; **Henry W. Robison**, School of Science and Technology, Southern Arkansas University, Magnolia, AR 71753. **PREDATION AND OTHER LIFE HISTORY ASPECTS OF THE PALEBACK DARTER A FIVE-YEAR STUDY.**

10:00 Break

Chairperson: Dr. Joseph W. Stoeckel, Arkansas Tech University

10:15 **Fangqing Liang**, and **Ronald L. Johnson**, Department of Biology, Arkansas State University, Jonesboro, AR. **ALLOZYME STUDIES OF SELECTED SPECIES OF UNIONIDAE IN THE CACHE AND WHITE RIVERS, ARKANSAS.**

10:30 **William Posey II**, **John L. Harris**, and **George L. Harp**, Department of Biological Sciences, Arkansas State University, Jonesboro, AR 72467. **SELECTED COMMUNITY CHARACTERISTICS OF FRESHWATER MUSSELS (UNIONACEA) IN THE ST. FRANCIS RIVER, ARKANSAS.**

10:45 **Anthony Holt**, and **George L. Harp**, Department of Biological Sciences, Arkansas State University, Jonesboro, AR 72467. **THE DYTISCIDAE (PREDECEOUS DIVING BEETLES) OF ARKANSAS.**

11:00 **Austin Richards**, and **George L. Harp**, Department of Biological Sciences, Arkansas State University, P.O. Box 599, Jonesboro, AR 72467. **THE DISTRIBUTION AND HABITAT PREFERENCE OF GYRINUS MULLER (COLEOPTERA: GYRINIDAE) IN ARKANSAS WITH COMMENTS ON AGGREGATION BEHAVIOR.**

11:15 **George L. Harp**, Department of Biological Sciences, Arkansas State University, State University, AR 72467, Eugene Leeds, USDA Forest Service, P.O. Box 190, Clarksville, AR 72830, and **Henry W. Robison**, Dept. of Biology, Southern Arkansas University, Magnolia, AR 71753. **A PRELIMINARY REPORT ON THE FAIRY SHIMP (ANOSTRACE: EUBRANCHIOPODA) OF ARKANSAS.**

11:30 **Austin Richards**, and **George L. Harp**, Department of Biological Sciences, Arkansas State University, P.O. Box 599, Jonesboro, AR 72467. **THE DISTRIBUTION AND HABITAT PREFERENCE OF DINEUTUS MACLEAY AND GYRETES COMPRESSUS LECONTE, 1863 (COLEOPTERA: GYRINIDAE) IN ARKANSAS.**

CHEMISTRY AND CHEMICAL ENGINEERING II

HPER Complex Lecture Hall

Chairperson: Dr. C. Bhuvaneshwaran, University of Arkansas for Medical Science

TIME TOPIC

9:00 **S. Cady** and **M. Sono**, Department of Chemistry, Biochemistry and Physics, Arkansas State University, P.O. Box 419, Jonesboro, AR 72467-0419. **EFFECT OF TRYPTOPHAN ANALOGS ON THE CATALYTIC ACTIVITY OF INDOLEAMINE 2,3-DIOXYGENASE.**

9:15 **Roger M. Hawk** and **Gene Lee Bangs**, Department of Applied Science University of Arkansas at Little Rock, 2401 South University, Little Rock, AR 72204. **A ³¹P, ¹³C, AND ¹H NMR STUDY OF THE DIRECT INTERACTION OF COCAINE AND MAGNESIUM ATP.**

9:30 **Lawrence D. Fitz**, **Richard B. Walker** and **Ray Bakhtiar**, Chemistry Department, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601. **Merck Research Laboratories, P.O. Box 2000, Rahway, NJ 07065-0900. IONSpray MASS SPECTRA OF OXAZOLIDINE DERIVED FROM (-) EPHEDRINE.**

9:45 **Traci O'Bryant**, **Danita Ewing**, **L. Blayne Love**, **Lawrence D. Fitz** and **Richard B. Walker**. Chemistry Department, University of Arkansas at Pine Bluff, 1200 N. University Drive, Pine Bluff, AR 71601. **MEASUREMENT OF KINETICS OF HYDROLYSIS OF OXAZOLIDINES DERIVED FROM EPHEDRINE.**

10:00 **Delaney Kinchen**, and **Rose M. McConnell**, Division of Math & Sciences, University of Arkansas at Monticello, Monticello, AR 71656. **SYNTHESIS OF PEPSTATIN ANALOGS FOR PROTEINASE INHIBITION.**

10:15 **Joshua M. Loeske**, **William F. Nicholson**, and **Rose M. McConnell**. Division of Math & Science, University of Arkansas at Monticello, Monticello, AR 71656. **INHIBITION STUDIES OF NEW PEPSTATIN ANALOGUES.**

10:30 **Crissy Patterson**, and **Rose M. McConnell**, Division of Math & Sciences, University of Arkansas at Monticello, Monticello, AR 71656. **PREPARATION OF ¹³C-LABELED LEUPEPTIN.**

10:45 Break

SCIENCE EDUCATION

Chairperson: Dr. Shelton Fitzpatrick, University of Arkansas at Pine Bluff

11:00 **Freddie Jolivette**, Science Department, Southeast Jr. High, Pine Bluff School District #3, Pine Bluff, AR. **RESEARCH WITHIN REACH: A SCIENCE/MATH MENTORSHIP PROGRAM.**

11:15 **Donald E. Culwell**, University of Central Arkansas, Department of Biology, Conway, AR 72035-0001. **BIOLOGY FIELD STUDY X3450 - ONE EXCITING WAY TO EXPERIENCE AND LEARN BIOLOGY!**