Keynote Speaker and Meeting Program

David Gross

Academy Editors

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FEATURED GUEST SPEAKER

"THE FRONTIERS OF FUNDAMENTAL PHYSICS"

by Prof. David Gross

At the frontiers of physics we search for the principles that might unify all the forces of nature and we strive to understand the origin and history of the universe. In this lecture I shall describe some of the questions that we ask and some of the proposed answers. I shall also discuss what it might mean to have a final theory of fundamental physics and whether we are capable of discovering it.

The 2004 Nobel Prize in Physics, awarded to David Gross, professor of physics and director of the Kavli Institute for Theoretical Physics at the University of California, Santa Barbara, and two others. The award recognizes the key discovery that explained how quarks, the elementary constituents of the atomic nucleus, are bound together to form protons and neutrons. In 1973, Gross and Wilczek, working at Princeton, showed that the attraction between quarks grows weaker as the quarks approach one another more closely, and correspondingly that the attraction grows stronger as the quarks are separated. This discovery, known as “asymptotic freedom,” established quantum chromodynamics (QCD) as the correct theory of the strong nuclear force, one of the four fundamental forces in Nature.

Of the four fundamental forces --- the others besides the strong nuclear force are electromagnetism, the weak nuclear force (responsible for the decay of radioactive nuclei), and gravitation --- the strong force was by far the most poorly understood in the early 1970s. According to the Royal Swedish Academy of Sciences; the “discovery was expressed in 1973 in an elegant mathematical framework that led to a completely new theory, QCD” With this discovery, physics was brought one step closer to fulfilling Einstein’s grand dream, that is to formulate a unified theory comprising gravity as well—a unified theory for everything.

Prof. David Gross received his Ph.D. from the University of California, Berkeley in 1966 and then was a Junior Fellow at Harvard. In 1969 he went to Princeton where he was appointed Professor of Physics in 1972. He is the recipient of the J. J. Sakurai Prize of the American Physical Society in 1986, a MacArthur Foundation Fellowship Prize in 1987, the Dirac Medal in 1988, the Oscar Klein Medal in 2000 and the Harvey Prize of the Technion in 2000, France's highest scientific honor the Grande Médaille D'Or (the Grand Gold Medal), and the High Energy and Particle Physics Prize of the European Physical Society in 2003. He has received two honorary degrees.
### SECTION PROGRAMS
### ORAL PRESENTATIONS

#### FRIDAY 1:00 – 2:30

**CHEMISTRY I SESSION.**
**CHAIR: ANTHONY GRAFTON,**
**SCIENCE CENTER 104**

1:00
**OPTIMIZATION AND CHARACTERIZATION OF THE ELECTRODEPOSITION PROCESS FOR CdTe FOR POTENTIAL SOLAR CELL APPLICATIONS**

1:15
**THEORETICAL JUSTIFICATION FOR BOND VALENCE - BOND LENGTH EMPIRICAL CORRELATIONS**
Summer Laffoon, Franklin D Hardcastle. Arkansas Tech University

1:30
**DESIGN OF AN ELECTROSPRAY IONIZATION (ESI) SOURCE FOR THE STUDY OF GAS-PHASE REACTIONS OF LIGATED TRANSITION METAL IONS**
Li Chen Chen, William S Taylor. University of Central Arkansas

1:45
**STATE-SPECIFIC REACTIONS OF GAS PHASE NI WITH CH3 AND CF3X (X=BR, I): EVIDENCE OF SELECTIVE HALOGEN ABSTRACTION**
Kendall G Fancher, Li C Chen, Ashley J Hicks, Casey A Cameron, William S Taylor. University of Central Arkansas

2:00
**ELECTRODEPOSITION OF COPPER INDIUM DISULFIDE FILMS USING PHOTOVOLTAICITY AND REST POTENTIALS**
M. Jason Newell, Robert Engelken, Maqsood Ali Mughal, John Hall, Joshua Vangilder, Frederick Felizco, David McNew, Shyam Thapa, Elizabeth Hundley, Bruce Johnson, Ross Carroll. Arkansas State University

**FRIDAY 1:00 – 2:30**
**PHYSICS I SESSION.**
**CHAIR: RUDY EICHENBERGER,**
**SCIENCE CENTER 103**

1:00
**THE FLUID MODEL FOR RETURN STROKE OF LIGHTNING WITH CURRENT BEHIND THE SHOCK FRONT**
Dacen Waters, Mostafa Hemmati. Arkansas Tech University

1:15
**CURRENT RANGE FOR ANTIFORCE BREAKDOWN WAVES**
Jesse Christensen, Mostafa Hemmati. Arkansas Tech University

1:30
**STRUCTURAL AND OPTICAL PROPERTIES OF METAL-OXIDE CORE-SHELL NANOWIRE ARRAYS FABRICATED BY ATOMIC LAYER DEPOSITION**
Allan Thomas, Jingbiao Cui. University of Arkansas at Little Rock

1:45
**ENHANCING THE TUNABILITY OF MATERIAL PROPERTIES IN ZNO: THE USE OF AN OXYGEN PLASMA IN ATOMIC LAYER DEPOSITION**
Allan Thomas, Jingbiao Cui. University of Arkansas at Little Rock

2:00
**DNA ABERRATIONS INDUCED BY GAMMA RADIATION ON THE DROSOPHILA MELANOGASTER**
Paul M Morgan, Salomon F Itza, William J Doria. University of the Ozarks

#### FRIDAY 1:00 – 2:30

**WILDLIFE BIOLOGY SESSION.**
**CHAIR: ANDRES BACON,**
**SCIENCE CENTER 105**

1:00
**TWENTY-FOUR YEAR STUDY OF STARLING-BLACKBIRD ROOSTS IN NORTHWESTERN ARKANSAS**
Douglas A James. University of Arkansas, Fayetteville, AR

1:15
**SUMMARY OF PREVIOUS AND NEW RECORDS OF THE LEAST DARTER (ETHEOSTOMA MICROPERCA) IN ARKANSAS**
Brian K Wagner, Mark D Kottmyer, Michael E Slay. Arkansas Game and Fish Commission

1:30
**DISTRIBUTION, LIFE HISTORY ASPECTS, AND CONSERVATION STATUS OF THE SPOTHANDED CRAYFISH, ORCONECTES PUNCTIMANUS (CREASER) (DECAPODA: CAMBARIDAE), IN ARKANSAS**
Chris T. McAllister1 and Henry W. Robison2
1Eastern Oklahoma State College , 2Southern Arkansas University

1:45
**DOES THE IMPORTANCE OF CRAYFISH AS SHREDDERS DIFFER WITH FLOW PERMANENCE?**
Amanda Bates, Sally Entreklin. University of Central Arkansas

2:00
**DIET OF RADIOTRACKED MUSK TURTLES, STERNOTHERUS ODORATUS, IN AN URBAN STREAM**
Caitlin E Wilhelm, Michael V Plummer. Harding University

2:15
**SEARCHING FOR HARVESTER ANTS (POGONOMYRMEX) IN ARKANSAS**
Lynne Thompson, Dave General. University of Arkansas Monticello

#### FRIDAY 1:00 – 2:30

**HUMAN BIOLOGY SESSION.**
**CHAIR: SCOTT KIRKCONNELL,**
**SCIENCE CENTER 201**

1:00
**BACTERIOSTATIC ACTIVITY OF A NOVEL SILVER-CONTAINING HYDROGEL**
Brady Spencer, Daniel Atchley, Kenneth Yates. Harding University

1:15
**RETROSPECTIVE EPIDEMIOLOGIC ANALYSIS OF INFLUENZA PANDEMICS IN ARKANSAS**
Andrew J Gray, Ben M Rowley. University of Central Arkansas

1:30
**THE COMBINED EFFECTS OF EXERCISE AND MUSIC ON THE COGNITIVE FUNCTIONING OF COLLEGE STUDENTS**
Amber R Acord, Shellie Hanna, Scott Kirkconnell. Arkansas Tech University

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EFFECTS OF EXERCISE ON COGNITION IN YOUNG ADULTS
Hunter L Robinson, Mariah Small. Arkansas Tech University

3:45
CYTP2C19-CATALYZED METABOLISM OF R- AND S-WARFARIN AND POTENTIAL INHIBITION BY HYDROXYWARFARIN METABOLITES
Sun-ha Park, So-Young Kim, Drew R Jones, Jessica H Hartman, Chul-Ho Yun, Grover P Miller. Chonnam National University, Gwangju, South Korea, University of Arkansas for Medical Sciences

4:00
TAGUCHI ANALYSIS AND CHARACTERIZATION OF ELECTRODEPOSITED INDIUM (III) SULFIDE (In2S3) FILMS FOR USE AS POTENTIAL BUFFER LAYERS IN SOLAR CELLS

4:15
PREDICTING CATALYTIC PARAMETERS OF ENANTIOSELECTIVE OXIDATIONS BY CYTP2C19 USING A CHIRALITY CODE AND ARTIFICIAL NEURAL NETWORKS
Jessica H Hartman, Steven D Cothren, Jerry A Darsey, Grover P Miller. University of Arkansas for Medical Sciences; University of Arkansas at Little Rock

3:30
PROPERTIES OF INTERACTING DARK ENERGY MODELS
Chad Smith, Hamed Shojaei. Arkansas Tech University

3:45
THE LINK BETWEEN CENTRAL BLACK HOLES, BAR DYNAMICS, AND DARK MATTER HALOS IN SPIRAL GALAXIES
Marc S Seigar1, Patrick Treuthardt1, Amber D Sierra1, Ismaeel Al-Baidhany1, Heikki Salo2. 1University of Arkansas at Monticello, 2University of Oulu.

4:00
CHARGE AZIMUTHAL CORRELATION AND CHARGE SEPARATION IN RELATIVISTIC HEAVY ION COLLISIONS
Bin Zhang, Guo-Liang Ma. Arkansas State University

4:15
ENERGY RESOLUTION DETERIORATION DUE TO RECOMBINATION IN HIGH PRESSURE XENON DETECTORS ALONG DELTA ELECTRON TRACKS
Kahl Remy1, Abel Barchi2, and Azriel Goldschmidt2. 1Southern Arkansas University, 2Lawrence Berkeley National Laboratory

4:30
COMPTON SCATTERING AND TOPOLOGICAL RECONSTRUCTION OF GAMMA RAYS IN A XENON TIME PROJECTION CHAMBER
Jeremy Dunklin1, Abel Barchi1, and Azriel Goldschmidt2. 1Southern Arkansas University, 2Lawrence Berkeley National Laboratory

4:45
PARTICLE SIZE DEPENDENCE OF SUPERPARAMAGNETIC BLOCKING IN MAGNETITE (Fe3O4) NANO PARTICLES
Joy D. Counts, Cristian E. Botez, Ronald J. Tackett. Arkansas Tech University

3:30
EFFECTS OF DROSOPHILA RIBOSOMAL PROTEIN S6 KINASE ON WING GROWTH
Mary J Stewart, John L Hunt. University of Arkansas at Monticello, North Dakota State University

3:45
THE USE OF AN INDUCIBLE GLUCOSE OXIDASE GENE IN TOBACCO TO AS A MODEL FOR OXIDATIVE STRESS RESEARCH
Nathan Reyna, Dexter Barksdale, Meg Coffman. Ouachita Baptist University

4:00
PHOSPHORYLATION-INDEPENDENT REGULATION OF ATF1-PROMOTED MEIOTIC RECOMBINATION BY STRESS-ACTIVATED, P38 KINASE SPC1 OF FISSION YEAST
Jun Gao, Mari K Davidson, Wayne P Wahls. University of Arkansas for Medical Sciences

4:15
THE ANALYSIS OF CATAACT AND/OR MYOPATHY CAUSING MISSIONE Mutation, R120G IN HUMAN ΑB-CRYSTALLIN
Anisha Rathi, Edathara Abraham. University of Arkansas for Medical Sciences

4:30
DETERMINING THE MECHANISM OF MITOCHONDRIAL FISSION/FUSION IN DICTYOSTELIUM DISCOIDEUM
Gregory Berbusse, Brixey Schimmel, Dustin Brewton, Aloys Nserko, Kari Naylor. University of Central Arkansas

4:45
CYTOKINE GENE EXPRESSION IN THE CECA OF TURKEY POULTS INFECTED WITH EIMERIA ADENOEIDES, MEASURED BY QUANTITATIVE PCR
Ujvala Deepthi Gadde, Thilakar Rathinam, Gisela F Erf, Hilary D Chapman. University of Arkansas

Friday 3:30 – 5:00
Plant Biology session. Chair: James Petersen, Science Center 201

3:45
HOW DISTINCT ARE THE GEOGRAPHICALLY ISOLATED COASTAL POPULATIONS OF PONDEROSA PINES IN THE WILLAMETTE VALLEY OF OREGON AND FORT LEWIS, WASHINGTON?
Kristen Finch1, Ann Willyard2, and Stephen Meyers2. 1Hendrix College, 2Oregon State University

4:00
UNDERSTANDING FLORISTIC DIVERSITY THOUGH A DATABASE OF GREENE COUNTY SPECIMENS
Kari M Harris, Meghan B Foard, Travis D Marsico. Arkansas State University

4:15
A POSSIBLE NEW ARKANSAS ENDEMIC PLANT REVEALED BY DNA SEQUENCE ANALYSIS
Karen P. Fawley1, Theo Witsell2, Marvin W. Fawley1, James S. Breedlove1, Randall J. Brockman1, Allan C. Humphrey1, Jeffrey M. Lawson1, Kirby N. McCallie1, Drew A. Prescott1, John T. Rushing2 and James M. Whitaker2. 1University of Arkansas at Monticello, 2Arkansas Natural Heritage Commission

Meeting Report

SATURDAY 9:00 – 10:30
ENVIRONMENTAL BIOLOGY AND GEOLOGY SESSION.
CHAIR: LEO CARSON DAVIS
SCIENCE CENTER 103

9:00
A PRELIMINARY COMPARISON OF MACROALGAE COVER IN UPPER ILLINOIS RIVER WATERSHEDS CATEGORIZED BY LAND USE AND WASTEWATER TREATMENT PLANT EXISTENCE

9:15
A PRELIMINARY COMPARISON OF INVERTEBRATE COMMUNITIES IN UPPER ILLINOIS RIVER WATERSHEDS CATEGORIZED BY LAND USE AND WASTEWATER TREATMENT PLANT EXISTENCE

9:30
ANOMALOUS HIGHLY POLISHED CHERT PEBBLES FROM PECCARY CAVE, NEWTON COUNTY, ARKANSAS
Diana A. Fletcher Stanley, Leo C. Davis, Kenneth M Ball. Southern Arkansas University

9:45
ARKANSAS CROP RESIDUES FOR SOLID BIOFUEL DEVELOPMENT IN THE REGION
Shyam Thapa, Robert Engelken, Kevin Humphrey, Joshua Vangilder, Maqsood Ali Mughal, M. Jason Newell, David McNee, Frederick Felizco, John Hall, Elizabeth Hundley. Arkansas State University

SATURDAY 9:00 – 10:30
NEW RECORDS IN BIOLOGY SESSION.
CHAIR: JUN GAO,
SCIENCE CENTER 104

9:00
NEW STATE RECORD INSECTS FROM THE BURROWS OF BAIRD’S POCKET GOPHER IN ARKANSAS.
Peter W. Kovarik, Matthew B. Connior, Stephen W. Chordas III, Paul E. Skelley, Henry W. Robison. Columbus State Community College

9:15
DISTRIBUTION, LIFE HISTORY ASPECTS, AND CONSERVATION STATUS OF THE SPOTHANDED CRAYFISH, ORCONECTES PUNCTIMANUS (CREASER) (DECAPODA: CAMBARIDAE), IN ARKANSAS
Chris T. McAllister1 and Henry W. Robison2. 1Eastern Oklahoma State College, 2Southern Arkansas Community College

9:30
NEW GEOGRAPHIC DISTRIBUTION RECORDS FOR CENTIPEDES (CHILIPODA: SCOLOPENDROMORPHA) IN ARKANSAS, INCLUDING THE FIRST FROM CROWLEYS’S RIDGE AND THE GRAND PRAIRIE
Chris T. McAllister1, Henry W. Robison2, Lynne C. Thompson3, and Matthew B. Connior4. 1Eastern Oklahoma State College, 2Southern Arkansas University, 3University of Arkansas–Monticello, 4South Arkansas Community College

9:45
NEW GEOGRAPHIC DISTRIBUTION RECORDS FOR HORSEHAIR WORMS (NEMATOMORPHA: GORDIIDA) IN ARKANSAS, INCLUDING NEW STATE RECORDS FOR CHORDODES MORGANI AND PARAGORDIUS VARIUS
Henry W. Robison1, Chris T. McAllister2, and Ben Hanelt3. 1Southern Arkansas University, 2Eastern Oklahoma State College, 3University of New Mexico

10:00
A NEW HOST AND GEOGRAPHIC DISTRIBUTION RECORD FOR THE LEECH, MYZOBDELLA REDUCTA (HIRUDINAE: PISCICOLIDAE), FROM ARKANSAS
Chris T. McAllister1, William E. Moser2, Dennis R. Richardson1, and Henry W. Robison3. 1Eastern Oklahoma State College, 2Smithsonian Institution, National Museum of Natural History, Department of Invertebrate Zoology, 3Quinnipiac University, 4Southern Arkansas University

10:15
NEW VERTEBRATE RECORDS AND NATURAL HISTORY NOTES FROM ARKANSAS
Matthew B Connior, Renn Tumlison, Henry W Robison. South Arkansas Community College

Saturday 9:00 – 10:30
WILDLIFE BIOLOGY.
CHAIR: BRIAN WAGNER,
SCIENCE CENTER 105

9:00
POPULATION STRUCTURING AND TRANSMISSION DYNAMICS OF GROMPHADORHOLAELAPS SCHAFFERI, A SYMBIOTIC MITE OF THE MADAGASCAR HISSING COCKROACH GROMPHADORHINA PORTENTOSA
Dennis J Richardson, Quinnipiac University

9:15
THE TESTICULAR HISTOLOGY AND GERM CELL CYTOLOGY OF SPERMATOGENESIS OF THE MISSISSIPPI MAP TURTLE, GRAPTEMYS PSEUDOGEOGRAPHICA KOHNII, FROM NORTHEASTERN ARKANSAS
Kelsey F. Lancaster and Stanley E. Trauth. Arkansas State University

9:30
MORPHOLOGY OF RATHKE’S GLANDS IN THE SNAPPING TURTLE, CHELYdra SERPENTINA, WITH COMMENTS ON THE PRESENCE OF MULTILAMINAR LAMELLAR BODIES IN TURTLES
Stanley E. Trauth. Arkansas State University

9:45
LIFE HISTORY NOTES OF THE BROWN TARANTULA (APHONOPELMA HENTZI) FROM ARKANSAS
David H. Jamieson1, Austin Jones2, Terry Jamieson1. 1Crowder College, 2NorthWest Arkansas Community College

10:00
HERPETOLOGICAL INVENTORY OF FIVE PROTECTED AREAS IN SOUTH-CENTRAL ARKANSAS
Tobin Fulmer1, Matthew Connior2. 1Arkansas Natural Heritage Commission, 2South Arkansas Community College

POSTER PRESENTATION

BIOLOGY POSTERS

1. STATUS, DISPERAL, AND BREEDING BIOLOGY OF THE EXOTIC EURASIAN COLLARED DOVE (STREPTOPelia DECAOCTO) IN ARKANSAS
John M. Fielder, Ragupathy Kannan, Douglas A. James. University of Arkansas - Fort Smith

2. ESTABLISHING BASELINE DATA IN THE SUBWATERSHEDS OF THE STRAWBERRY RIVER, AR, PRIOR TO IMPLEMENTATION OF AGRICULTURAL BEST MANAGEMENT PRACTICES
Teresa R Brueggen, Jennifer L Bouldin. Arkansas State University - Jonesboro
3. SOUTHERN ARKANSAS UNIVERSITY BIODIVERSITY COLLECTION AND DATABASE
Katherine S Dockter, Shawn E Krosnick. Southern Arkansas University

4. CENTRAL NESTS ARE MORE SUCCESSFUL AND PREFERRED THAN PERIPHERAL NESTS IN CLIFF SWALLOW COLONIES
John Thames, Douglas Leasure, Binh Cortes, Ragupathy Kannan, Steward Huang, Douglas James. University of Arkansas - Fort Smith

5. AN UPDATED PROTOCOL FOR HUMAN LEUKOCYTE CULTURE AND KARYOTYPE PREPARATION FOR USE IN BIOLOGICAL EDUCATION
Shawn Krosnick, Tyler Chafin, Subir Shakya. Southern Arkansas University

6. DIFFERENTIAL USE OF FEMORAL GLANDS BASED ON FORAGING STRATEGY IN LIZARDS
Gregory J Robinson, Stanley E Trauth. Arkansas State University

7. EFFICACY OF CHEMICAL VS. BIOLOGICAL TREATMENT PROTOCOLS FOR THE REMOVAL OF PHOSPHORUS FROM MUNICIPAL WASTEWATER EFFLUENT
Emily Hitzfelder, Anna Willis, Timothy Wakefield. John Brown University

8. RELIABILITY OF STUDENT BIOASSESSMENTS OF FLINT CREEK
Hannah Constantin, Gibbs Kuguru, Rachel Watson, Timothy Wakefield.
John Brown University, Siloam Springs, AR

9. SEARCHING FOR BEETLES (COLEOPTERA: SCARABAEIDAE AND HISTERIDAE) ASSOCIATED WITH THE DUNG OF NATIVE ARKANSAS MAMMALS
Bo Kelley, Matthew B Connior, John L Hunt. University of Arkansas-Monticello

10. HPLC ANALYSIS OF NECTAR SAMPLES COLLECTED FROM PASSIFLORA HERBERTIANA: IMPLICATIONS FOR FEEDING PREFERENCES OF AUSTRALIAN PASSERINE BIRDS
Samson G King, Shawn Krosnick, Tim Schroeder. Southern Arkansas University

11. USING FORWARD-LOOKING INFRARED IMAGERY TO ESTIMATE WHITE-TAILED DEER POPULATIONS ON A MILITARY INSTALLATION
Danielle M Techentin, Emily S Boyd, Wesley E Sparks, Robert E Kissell, Jr. University of Arkansas - Monticello

12. TURTLE USAGE OF URBAN DITCHES IN AN EXPANDING NORTHEASTERN ARKANSAS CITY
Jonathan S Elston, John J Kelly, Stan E Trauth. Arkansas State University - Jonesboro

13. HISTORY AND CURRENT STATUS OF EGYPTIAN GOOSE (ALOPOCHEN AEGYPTIACUS) IN NORTHEASTERN ARKANSAS
Kimberly G Smith, Douglas A James. University of Arkansas

14. LAMBING SEASON ECOLOGY OF BIGHORN SHEEP IN THE BIGHORN CANYON NATIONAL RECREATION AREA
Faye Stephens, Robert Kissell, Emily Boyd.
University of Arkansas at Monticello

15. BUFFALO BILL AND THE WILD HORSES OF WYOMING: GENETICS TRACED TO ENGLISH ROYAL FAMILY HORSES
Rachel Fowler, Gretchen Saam, Claude Baker.
Southern Arkansas University

16. BACTERIAL TRANSFORMATION AND PROTEIN PURIFICATION OF A MUTANT GFP FUSION GENE
Tyler Moore, Jeremy Greene, Subir Shakya. Southern Arkansas University

17. EXPRESSION OF FTSZ ORTHOLOGS TO IDENTIFY INTERACTING PROTEIN
Dustin H Brewton. University of Central Arkansas

18. AN APPROACH TO IDENTIFY HISTONE POST-TRANSLATIONAL MODIFICATIONS THAT REGULATE MEIOTIC RECOMBINATION
Aaron J Storey, April Bostian, Jun Gao, Wayne P Wahls.
University of Arkansas for Medical Sciences

19. MEASUREMENTS OF MELANOCYTES IN A PIGMENTED NORTHERN BLINDFISH, AMBLYOPSIS SPELAEA, AND COMPARISONS WITH SOUTHERN, NORTHERN, AND OZARK BLINDFISH
Rachel Seals, Tyler Brown, Philip Schelb, Claude Baker.
Southern Arkansas University

20. HISTOLOGIC FEATURES OF THE SPRING CAVEFISH, FORBESICHTHYS AGASSIZII: MELANOCYTES, EYE AND OTHER INTERESTING MATERIAL.
Shivani Dabadi, Claude Baker.
Southern Arkansas University - Magnolia AR

21. CURATION OF SOUTHERN ARKANSAS UNIVERSITY’S HERBARIUM COLLECTIONS: R EDISCOVERING THE BOTANICAL WEALTH
Brant D Roberts, Shawn Krosnick.
Southern Arkansas University

22. HISTORY AND CURRENT STATUS OF EGYPTIAN GOOSE (ALOPOCHEN AEGYPTIACUS) IN NORTHEASTERN ARKANSAS
Kimberly G Smith, Douglas A. James. University of Arkansas

23. LITERATURE REVIEW: TREATMENT OPTIONS OF THE HUMAN PAPILLOMA VIRUS
Valerie N. Maangi. Southern Arkansas University

24. DIET OF RADIOTRACKED MUSK TURTLES, STERNOTHERUS ODORATUS, IN AN URBAN STREAM
Caitlin E Wilhelm, Michael V Plummer. Harding University

25. THE ANALYSIS OF CATARACT AND/OR MYOPATHY CAUSING MISSENSE MUTATION, R120G IN HUMAN αβ-CRYSTALLIN
Anisha Rathi, Edathara Abraham.
University of Arkansas for Medical Sciences

26. BACTERIOSTATIC ACTIVITY OF A NOVEL SILVER-CONTAINING HYDROGEL
Brady Spencer1, Daniel Atchley2, Kenneth Yates3. Harding University

27. MATHEMATICAL MODELING OF COTTON LEAF PHOTOSYNTHESIS
Daniel Brinker. University of Central Arkansas

28. TIGERS ON A PHAGE HUNT
Max Embury, Joseph Koon, Ruth Plymale, Nathan Reyna.
Ouachita Baptist University

29. THE USE OF AN INDUCIBLE GLUCOSE OXIDASE GENE IN TOBACCO TO AS A MODEL FOR OXIDATIVE STRESS RESEARCH
Nathan Reyna, Dexter Burksdale, Meg Coffman.
Ouachita Baptist University

30. HABITAT USE OF ROCKY MOUNTAIN BIGHORN SHEEP AT BIGHORN CANYON NATIONAL RECREATION AREA
Emily S. Boyd, Robert E. Kissell, Faye Stephens.
University of Arkansas - Monticello
Meeting Report

31. ANALYZING THE LONG RUN AND SHORT RUN PRICE CAUSALITIES BETWEEN WOODY BIOMASS AND OTHER SOURCES OF ENERGY
Krishna Koirala and Sayeed R. Mehmood.
University of Arkansas - Monticello

CHEMISTRY POSTERS

1. INVESTIGATION OF CONTAMINATION LEVELS IN SOUTHWEST ARKANSAS LAKE WATER
Katherine S. Dockter, and Tim S. Schroeder. Southern Arkansas University

2. SYNTHESIS AND CHARACTERIZATION OF PYRAZOLYL METHANE NICKEL THIOCYANATE COMPLEX
Hee Kyung Jeon1, Ganna Lyubartseva, Uma Prasad Mallik1 and Sean Parkin1
Southern Arkansas University, Magnolia, AR; University of Kentucky, Lexington, KY

3. INFLUENCE OF AUDIENCE RESPONSE SYSTEM TECHNOLOGY ON STUDENT PERFORMANCE IN ORGANIC CHEMISTRY LECTURE CLASS
Ganna Lyubartseva. Southern Arkansas University

4. A STUDY OF NUTRIENT AND SEDIMENT INPUT IN THE CACHE RIVER WATERSHED
Alisha Gilmer, Carlos Rosado Berrios, Jennifer L. Bouldin.
Arkansas State University-Jonesboro

5. SYNTHESIS AND CHARACTERIZATION OF RUTHENIUM COMPLEX WITH PHENANTHROLINE AND CHLOROPHENANTHROLINE
Anwar A. Bhuiyan, Jaehwan J. Lee, Albert R. Del Carmen.
Arkansas Tech University

6. COMPARISONS OF SAMPLE INTRODUCTION METHODS: LIMITS OF DETECTION AND ANALYTICAL SENSITIVITIES IN INDUCTIVELY COUPLED PLASMAS
Justin R. May, Tim S. Schroeder. Southern Arkansas University

PHYSICS POSTERS

1. ELECTROCHEMICAL POLYMERIZATION OF NANOCOMPOSITE POLYPYRROLE (PPY)/MULTI WALL CARBON NANOTUBES FUNCTIONALIZED BY COOH AS A COUNTER ELECTRODE DYE -SENSITIZED SOLAR CELL
Samir AbdusAlmohsin, Muatze Mohammed, Jingbiao Cui.
University of Arkansas at Little Rock

2. SPIN COATER DEPOSITED P3HT PRISTIN AND NANOCOMPOSITE G-P3HT FOR DYE-SENSITIZED SOLAR CELL COUNTER ELECTRODES COMPAREABLE TiO2 AND ZNO NANORODE AS WORKING ELECTRODE
Samir AbdusAlmohsin, Muatze Mohammed, Jingbiao Cui.
University of Arkansas at Little Rock

3. A MEASURING AND COMPARISON SUPERMASSIVE BLACK HOLE MASS USING TWO INDEPENDENT TECHNIQUES
Ismael Al-Baidhany, Marc Seigar, Patrick Treuthardt, Daniel Kennefick, Julia Kennefick, Ben Davis. University of Arkansas at Little Rock

4. CHARACTERIZATION OF ALUMINUM DOPED ZNO/PANI HYBRID SOLAR CELLS USING ELECTRO-POLYMERIZATION TECHNIQUE
Samir AbdusAlmohsin, Muatze Mohammed, Jingbiao Cui. University of Arkansas at Little Rock

5. SCHOTTKY DIODE SOLAR CELLS BY USING ELECTROCHEMICAL POLYMERIZATION OF POLYANILINE ON THE ALUMINUM
Samir AbdusAlmohsin, Muatze Mohammed, Jingbiao Cui. University of Arkansas at Little Rock

6. SYNTHESIS STUDY OF THE OPTICAL PROPERTIES OF SPRAYED ZNO AND ZNO:GA THIN FILMS
Al Mustasiriyah University

7. IMPERVIOUS SURFACE AREA CHANGE BY COUNTY IN ARKANSAS
Long E. Daniel, Robert C. Weih Jr. University of Arkansas at Monticello

8. DOUBLE SHOTTCKY OF NIO/GRAPHENE/SI FOR ENHANCE EFFICIENCY SOLAR CELL
Muatze Z. Mohammed, Samir AbdusAlmohsin, Alaa A. AL-Hilo, Tar-pin Chen, Jingbiao Cui.
University of Arkansas at Little Rock

9. PARTICLE SIZE DEPENDENCE OF SUPERPARAMAGNETIC BLOCKING IN MAGNETITE (Fe3O4) NANOPARTICLES
Joy D. Counts, Cristian E. Botez, Ronald J. Tackett.
Arkansas Tech University

10. FABRICATION AND STUDIES ON CDS TO BE A N-P-N SOLAR CELL JUNCTION
Muatze Z. Mohammed, Samir AbdusAlmohsin, Alaa A. AL-Hilo, Tar-pin Chen, Jingbiao Cui.
University of Arkansas at Little Rock

11. IMPERVIOUS SURFACE AREA CHANGE BY COUNTY IN ARKANSAS
Long E. Daniel, Robert C. Weih Jr. University of Arkansas at Monticello

12. ENERGY RESOLUTION DETERIORATION DUE TO RECOMBINATION IN HIGH PRESSURE XENON DETECTORS ALONG DELTA ELECTRON TRACKS
Kahlil Remy, Abdel Bachri, and Azriel Goldschmidt.
Southern Arkansas University