

2016

## Business meeting report (Secretary's and Treasurer's Report)

Academy Editors

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**Business meeting report**

**Secretary's Report  
MINUTES OF THE 100th MEETING**

ARKANSAS ACADEMY OF SCIENCE  
SPRING 2016 BUSINESS MEETING MINUTES  
April 2, 2016 – 11:00 am  
BELL 273, University of Arkansas at Fayetteville

1. The meeting was called to order by President Ann Willyard.
2. Local Arrangements Committee: Paneer Selvam  
The conference arrangements came out well. Discussed about the Chief Guest, proceedings and donations from the Provost, Vice Provost and Deans of Engineering, Science, Agriculture, Graduate School and Honors College. Each of the office gave \$1000. The number of registrants went over 300 and the number of abstracts went over 240.
3. Secretary's Report: Jeff Robertson, Salomon Itza  
Minutes from the Executive Committee Meeting of December 5, 2015 minutes were reviewed and approved. Business Meeting of April 11, 2015 was reviewed and approved.
4. Treasurer's Report: Mostafa Hemmati  
An accounting of the AAS for 2016 was presented and discussed by the membership. The report was reviewed by the Auditing Committee (Colis and Lois Geren). The auditing committee applauds the work of Treasurer Mostafa Hemmati. The report was clean, all quantities add up. (see AAS financial statement in appendix.)
5. Historian's Report: Collis Geren  
Since the historian's report was distributed electronically to all meeting registrants, no formal report was made. (Please see the preface to this volume for the historic founding and early history of the Academy and the Journal).
6. Journal (JAAS #69) Report:  
Editor-In-Chief Mostafa Hemmati  
During the spring 2015 semester, 27 manuscripts were submitted for consideration for publication in volume 69 of the Journal of the Arkansas Academy of Science (JAAS). Soon after receiving the manuscripts, all manuscripts were sent to reviewers and two Associate Editors. The reviewers sent all manuscripts and their comments back before the end of July 2015.

Reviewers' comments were sent to the authors between July 15, 2015, and July 30, 2015. That process was completed by July 30, 2015. The authors were asked to respond to the reviewers' comments and return their manuscript back to Managing Editor, Dr. Still, by August 31, 2015. That allowed more than a month of time for the authors to respond to the reviewers' comments. In the same letter, the authors were also asked to mail a check for their page charges. August 31, 2015, was also the deadline for receipt of the payment of the page charges; we had to allow longer time for this volume of the Journal.

Five manuscripts required major revisions; however, the remaining manuscripts needed minor revisions. Therefore, volume 69 of the Journal will include 27 manuscripts. In the process of manuscript submission, no manuscripts were lost.

Two Associate Editors, Dr. Collis Geren and Dr. Frank Hardcastle, helped considerably with locating possible reviewers for the manuscripts or serving as reviewer for more than one manuscript. I am grateful for both Associate Editors' assistance. All activities relating to the handling of the manuscripts were performed electronically, and on the whole this expedited the review process. Managing editor post was performed by Dr. Ivan Still and as usual he did an excellent job. The Journal was completed by December 30, 2015. Printing of the Journal was completed by March 2, 2016. I have used Russellville Printing Company for printing of the Journal in the past and I used the same Company this year again.

Managing Editor Ivan Still

There were 27 manuscripts submitted for consideration of publication in volume 69 (2015) of the JAAS.

By the beginning of May these manuscripts were checked for style, grammar, format, etc, to ensure compliance with the "Instructions to Authors". Abstracts were sent to potential reviewers mid to late May. Dr. Hemmati handled Physical Science papers and recruited Drs. Collis Geren, and Dr. Frank Hardcastle to serve as Associate Editors, while Biological Science manuscripts were handled by Dr. Still. All manuscripts were sent out electronically for review by the beginning of June.

## Business meeting report

These were returned to the Managing Editor at the end of June/middle of July.

Most authors were contacted by e-mail by the middle of July 2015 and informed if their paper was accepted with the need for minor or major revision or whether their paper was rejected. Most manuscripts required minor revision while 5 required major revisions. All authors were asked to return their revisions to the Managing Editor electronically by August 31, with the page charges being submitted to Dr. Hemmati, Editor-in-Chief.

The total number of manuscripts that will be published this year is 27 (down from 31 in the previous year), of which 17 were Articles, 10 were in General Note format. The Journal was completed at the end of December when the Membership list and the final Treasurer's report was added. The Volume 69 was 170 pages long (including cover pages) and was sent for printing in January 2016.

I would like to thank the reviewers and Assistant/Associate Editors for their help in the preparation of volume 69, and finally the corresponding authors of submitted manuscripts and the reviewers for their efforts in maintaining the quality of the journal.

### Revision of Journal policies to maintain membership of the Directory of Open Access Journals:

Beth Juhl contacted me at the end of 2015 regarding our continued registration with the Directory of Open Access Journals. With the predatory practice of so-called Open Access Journals, the DOAJ tightened up, and required additional criteria for continued inclusion in the Directory. The following items were addressed as a requirement and where necessary added to the Journal Web site: 1) update to Journal's aims and scope; 2) a set editorial board of five members (already provisioned in the AAS Constitution), with contact information included; 3) the author guidelines; 4) clear Journal policies to maintain quality of the peer review process, academic honesty and integrity, including references to COPE's guidelines (available at <http://publicationethics.org/resources/guidelines>); and 5) copyright and Open Access statement. Full updates can be viewed at the Journal Website <http://www.arkansasacademyofscience.org/aasjournal.html>

### Matters arising from assessment of abstracting of the Journal.

Previous journal issues have included a statement regarding where the journal is abstracted. This was inherited from when Dr. Hemmati and I took over the management of the Journal. Several of these services have come under Thomson Reuters and will require reapplication, and possible monies, while some may no longer be appropriate (Anthropology, for instance, as no papers on this subject have been submitted for a while), and one no longer exists (1985 last issue!). Thus, I have removed this statement for the interim until I am able to investigate this matter further.

#### 7. Webmaster: Salomon Itza

Salomon reported that he is leaving Arkansas. He will be missed.

#### 8. Newsletter: Panneer Selvam

The newsletter for January was issued and publicized through email. The committee recommended to have a simple publication for the fall.

#### 9. Committee Reports:

##### Nominations Committee: Mostafa Hemmati

Ed Wilson inherited the presidency of the Academy, with Panneer Selvam as President-elect, Ann Willyard as Past-President, and Frank Hardcastle nominated as Vice President. Dr. Collis Geren was nominated to the position of Secretary, Kim Smith the post of Historian and Rami Alroobi, Webmaster. A new position in charge of Undergraduate Research Grants will be filled by Jess Kelly.

#### 10. Business Old and New:

Professor Stephen Addison proposed the University of Central Arkansas as the site of the 2017 meeting (101<sup>st</sup>)

Arkansas State University has volunteered to host the 102<sup>nd</sup> meeting in 2018.

AAS Undergraduate Research Awards (\$500) were given to support undergraduate research. Recipients of the 2016 awards were Amanda Brooks, Anna Sharabura and James Allen Jackson.

Student Awards were presented at the 100<sup>th</sup> AAS meeting and are detailed in Appendix A.

**Business meeting report****11. Motions and Action Items:**

Approval of the 2016-17 AAS budget for up to \$7,000 yearly, outside of journal publication costs, which includes student presentation awards, student research awards, and funding for affiliate organizations was sought. Moved by Hemmati and Seconded by Still. It was approved.

Ed Wilson was installed as President, with Paneer Selvam President-Elect, Frank Hardcastle as Vice President and Ann Willyard becomes Past President. All other nominations were accepted.

Meeting was adjourned at 12:03 P.M.

Draft submitted by Salomon Itza, to Dr. Geren, acting AAS Secretary, May 18 2016

**Treasurer's Report**  
**ARKANSAS ACADEMY OF SCIENCE**  
**2016 FINANCIAL STATEMENT**  
**December 13, 2016**

**Balance – November 4, 2016** **\$127,944.53**

**Balance – December 1, 2015** **\$110,045.33**

**Net Gain** **\$17,899.20**

**DISTRIBUTION OF FUNDS**

Checking Account - \$24,888.34  
Arvest Bank, Russellville

PayPal Account available Funds \$697.75  
on December 13, 2016

Certificate of Deposit \$51,179.22  
Includes Phoebe and George Harp Endowment  
Arvest Bank, Russellville

Certificate of Deposit \$51,179.22  
Arvest Bank, Russellville

Combined interest from Arvest Bank alone since December 01-  
December 13, 2016: \$134.72+ \$134.72 = \$269.44

**TOTAL** **\$127,944.53**

**INCOME:**

1. Transfer from CD to Checking **\$50,000.00**

**2. GIFTS RECEIVED**

a. Ouachita National Forest - Sponsorship \$0  
b. Contribution, Collis Geren \$250  
c. Contribution, Geren (\$250) +Returned Check \$25 \$275

**\$525**

**3. INTEREST (Interest Earned Year to Date)**

a. Checking Account, Arvest Bank 1290 \$0  
b. CD1 (Arvest Bank) 1357 \$134.72  
c. CD2 (Arvest Bank) 1358 \$134.72

All interest was added to the CDs **\$269.44**

**4. JOURNAL**

a. Page Charges \$13,300  
b. One Copy of Vol. 69 \$50  
c. Suscriptions, University of Arkansas \$900  
d. One Copy of Vol. 69 \$50  
e. One Copy of Vol. 70, IBSCO \$50

**\$14,350**

5. MISCELLANEOUS INCOME **\$0**

**6. MEMBERSHIP**

a. Associate \$15  
b. Individuals \$370  
c. Membership Fees from Meeting \$930  
d. Other Dues- From Meeting \$35  
e. Institutional (UAMS, \$100) + UAF\$100+Lyon\$100) \$300  
f. Life (Bullock, Secd-\$125; Kelly, Secd. \$125; Selvam, \$500; Liner \$500); Collis had recorded \$625 as Well \$1,250  
g. Sponsoring \$45  
h. Sustaining \$35

**\$2,980**

**7. MEETING INCOME**

a. Student Registration and Fees \$3,480  
b. Faculty Registration and Fees \$3,000  
c. Additional Meeting Income-Last Check \$1,683.66

**\$8,163.66**

**TOTAL INCOME** **\$26,018.66**

**EXPENSES**

1. STUDENT AWARDS **\$4,025**

**2. AWARDS (Organizations)**

a. Junior Science and Humanities Sym. \$400  
b. Arkansas State Science Fair \$400  
c. Arkansas Junior Academy of Science \$250  
d. Arkansas Science Talent Search \$150

**\$1,200**

**Business meeting report**

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**3. UNDERGRADUATE RESEARCH AWARDS**

a. Dr. MacDonald, Hendrix	\$500
b. Ms. Dalton, ATU	\$500
c. Dr. Kelly, Ouachita	\$500

**\$1,500**

**4. JOURNAL**

a. Volume 69 Printing Cost	\$2,622.87
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**\$2,622.87**

**5. MISCELLANOUS EXPENSES**

1. Extra Registration Fee Refund, Dr. Willyard	\$40
2. Extra Registration Refund- Nasaya	\$40
3. EXCOM Lunch, Hemmati	\$54.17
4. Journal Mailing Cost	\$68.46
5. Student Presentation Award's Mailing Cost	\$3.77
6. Membership Fee Refund	\$30
7. Website Registration	\$36
8. Life Membership Refund	\$500

**\$772.40**

**6. TRANSFER TO CD from Checking \$50,000**

**7. MEETING EXPENSES \$0.00**

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**TOTAL EXPENSES \$10,120.27**

**Business meeting report****ARKANSAS ACADEMY OF SCIENCE  
COST OF JOURNAL**

VOLUME	COPIES	PAGES	PRINTER CHARGE	TOT. VOL. COST	COST/ COPY	COST/ PAGE
36 (1982)	450	110	\$5,233.28	\$5,291.69	\$11.76	\$48.11
37 (1983)	450	103	\$5,326.91	\$5,944.44	\$13.21	\$57.71
38 (1984)	450	97	\$5,562.97	\$6,167.72	\$13.71	\$63.58
39 (1985)	450	150	\$7,856.20	\$8,463.51	\$18.81	\$56.42
40 (1986)	450	98	\$6,175.20	\$6,675.20	\$14.23	\$68.11
41 (1987)	450	116	\$7,122.79	\$7,811.25	\$17.36	\$67.34
42 (1988)	450*	116	\$7,210.79	\$7,710.15	\$17.13	\$66.47
43 (1989)	450*	119	\$8,057.24	\$8,557.24	\$19.02	\$71.91
44 (1990)	450*	136	\$9,298.64	\$9,798.64	\$21.77	\$72.05
45 (1991)	450*	136	\$9,397.07	\$9,929.32	\$22.06	\$73.01
46 (1992)	450*	116	\$9,478.56	\$10,000.56	\$22.22	\$86.21
47 (1993)	400	160	\$12,161.26	\$12,861.26	\$32.15	\$80.38
48 (1994)	450	270	\$17,562.46	\$18,262.46	\$40.58	\$67.63
49 (1995)	390	199	\$14,725.40	\$15,425.40	\$39.55	\$77.51
50 (1996)	345	158	\$11,950.00	\$12,640.75	\$36.64	\$80.00
51 (1997)	350	214	\$14,308.01	\$15,008.01	\$42.88	\$70.13
52 (1998)	350	144	\$12,490.59	\$13,190.59	\$37.69	\$91.60
53 (1999)	350	160	\$13,686.39	\$14,386.39	\$41.10	\$89.91
54 (2000)	350	160	\$14,149.07	\$14,849.07	\$42.43	\$92.81
55 (2001)	360	195	\$16,677.22	\$17,498.22	\$48.61	\$89.73
56 (2002)	350	257	\$18,201.93	\$19,001.93	\$54.29	\$73.94
57 (2003)	230	229	\$14,415.12	\$15,715.12	\$68.33	\$68.62
58 (2004)	210	144	\$7,875.76	\$9,175.76	\$43.99	\$63.72
59 (2005)	215	226	\$16,239.04	\$17,835.84	\$82.96	\$78.92
60 (2006)	220	204	\$11,348.06	\$12,934.30	\$58.79	\$63.40
61 (2007)	195	150	\$8,196.84	\$9,914.69	\$50.84	\$66.10
62 (2008)	220	166	\$2,865.00	\$2,967.49	\$13.49	\$17.88
63 (2009)	213	206	\$3,144.08	\$3,144.08	\$14.76	\$15.26
64 (2010)	232	158	\$2,713.54	\$2,764.30	\$11.91	\$17.50
65 (2011)	200	194	\$2915.12	\$2,963.03	\$14.82	\$15.27
66 (2012)	200	216	\$3,087.91	\$3,180.29	\$15.90	\$14.72
67 (2013)	200	238	\$3,311.42	\$3,396.32	\$16.98	\$14.27
68 (2014)	180	192	\$2,812.75	\$2,944.08	\$16.36	\$15.33
69 (2015)	180	170	\$2,622.87	\$2,622.87	\$14.57	\$15.43

The Total Volume Cost equals the printer's charge plus the other miscellaneous charges (e.g. Mailing Costs).

- On Volume 42 the Academy received 560 copies, but the printer did not charge us for the extra 110 copies. For comparison purposes the calculated cost/copy is based on 450 copies.
- On Volume 43 the Academy received 523 copies, but the printer did not charge us for the extra 73 copies. For comparison purposes the calculated cost/copy is based on 450 copies.
- On Volume 44 the Academy received 535 copies, but the printer did not charge us for the extra 85 copies. For comparison purposes the calculated cost/copy is based on 450 copies.
- On Volume 45 the Academy received 594 copies, but the printer did not charge us for the extra 144 copies. For comparison purposes the calculated cost/copy is based on 450 copies.
- On Volume 46 the cost was greater than usual due to the high cost of a second reprinting of 54 copies by a different printer.

APPENDIX A

AWARD WINNERS FROM THE 100<sup>TH</sup> ANNIVERSARY AKANSAS ACADEMY OF SCIENCE  
(awardees are underlined)

UNDERGRADUATE ORAL PRESENTATION

AWARDS: Chemistry

*1<sup>st</sup> Place*

**Cholesterol Influence on Arginine-Containing Transmembrane Peptides** by Jordana K. Thibado; Ashley Martfeld; Denise Greathouse; Roger Koeppel. University of Arkansas, Fayetteville

*2<sup>nd</sup> Place*

**Small Molecule Inhibitors of System xC** by John Kreun; Allen Snider; Mariusz P. Gajewski. Arkansas Tech University

*3<sup>rd</sup> Place*

**Length – Valence Relationship for Carbon – Nitrogen Chemical Bonds** by Connor Harris; Franklin D. Hardcastle. Arkansas Tech University

GRADUATE ORAL PRESENTATION AWARDS:

Chemistry

*1<sup>st</sup> Place*

**Varied Approaches to the Ionization Behavior of Specific Glu Residues That Face the Lipids in Transmembrane Helices** by Venkatesan Rajagopalan; Denise V. Greathouse; Roger E. Koeppel II. University of Arkansas, Fayetteville

*2<sup>nd</sup> Place*

**Evidence for a New Phase of Liquid Buried in Experimental Surface Tension Measurements of Supercooled Water** by Ryan Rogers; Kai-Yang Leong; Feng Wang. University of Arkansas Fayetteville

*3<sup>rd</sup> Place*

**Stereospecific Reduction of R- and S- Warfarin by Human Hepatic Cytosolic Reductase** by D. A. Barnette<sup>1</sup>; D. L. Pouncey<sup>2</sup>; R Nshimiyimana<sup>2</sup>; L. P. Desrochers<sup>2</sup>; D.K. Hammon<sup>2</sup>; T. E. Goodwin<sup>2</sup>; G. P. Miller<sup>1</sup>. University of Arkansas for Medical Sciences<sup>1</sup>; Hendrix College<sup>2</sup>

UNDERGRADUATE POSTER PRESENTATION

AWARDS: Chemistry

*1<sup>st</sup> Place*

**Determining Diffusion Coefficients in Bulk Solution and Through Membranes Using Electrochemical Time of Diffusion (ETOD)** by Madeline Meier; Jon Moldenhauer; David Paul. University of Arkansas, Fayetteville

*2<sup>nd</sup> Place*

**Helix Fraying May Stabilize Transmembrane Alpha Helices** by Armin Mortazavi; Venkatesan Rajagopalan; Roger E. Koeppel II. University of Arkansas, Fayetteville

*3<sup>rd</sup> Place*

**Determination of Fatty Acid Concentrations in Algae** by Donnell White; Beth Justice; Drake Palazzi. University of Arkansas at Monticello

GRADUATE POSTER PRESENTATION

AWARDS: Chemistry

*1<sup>st</sup> Place*

**Engineering the Structure of Fibroblast Growth Factor through Site Directed Mutagenesis for Increased Protein Stability** by Julie Davis; Srinivas Jayanthi; T.K.S. Kumar. University of Arkansas, Fayetteville

GRADUATE POSTER PRESENTATION

AWARDS: Molecular and Cellular Biology

*1<sup>st</sup> Place*

**Characterization of the Thioredoxin System in *Methanosarcina acetivorans* Reveals Complexity of the System in Methanogens** by Addison C. McCarver; Faith H. Lessner; Daniel J. Lessner. University of Arkansas, Fayetteville

*2<sup>nd</sup> Place*

**Simplifying Gene Stacking in Plants using Site Specific Recombinases and Nucleases** by Bhuvan Pathak; Jamie Underwood, Soumen Nandy; Shan Zhao; Vibha Srivastava. University of Arkansas, Fayetteville

*3<sup>rd</sup> Place*

**Precision Medicine: A Case for Exemestane Therapy** by Bryana J. Gregory; Joshua D. Simpson; Nour M. Hussein. Harding University College of Pharmacy

UNDERGRADUATE POSTER PRESENTATION

AWARDS: Molecular and Cellular Biology

*1<sup>st</sup> Place*

**Identification of the Gene Defective in J56, an *Arabidopsis* Auxin-conjugate Response Mutant** by Ahmed Stivers<sup>1</sup>; Bethany Zolman<sup>1</sup>; Rebekah Rampey<sup>2</sup>. Harding University<sup>1</sup>; University of Missouri-St. Louis<sup>2</sup>

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*2<sup>nd</sup> Place*

**Identification of Important Residues in *Arabidopsis* IBR3 Using Site-directed Mutagenesis and Mutant Phenotype Complementation assays** by Amy Scott<sup>1</sup>; Rebekah Rampey<sup>1</sup>; Bethany Zolman<sup>2</sup>. Harding University<sup>1</sup>; University of Missouri- St. Louis<sup>2</sup>

*3<sup>rd</sup> Place*

**Fatty Acid Metabolism Controlled by NHR-80 and NHR-49 is Necessary for *Caenorhabditis elegans* to Survive in Severe Hypoxia** by Quinton Anderson; Ben Saunders; Jo Goy. Harding University

**GRADUATE ORAL PRESENTATION AWARDS:**  
**Molecular and Cellular Biology**

*1<sup>st</sup> Place*

**GTP Hydrolysis Is Not Required by Chloroplast Signal Recognition Particle and its Receptor for Post Translational Targeting and Insertion of Integral Thylakoid Membrane Proteins** by Priyanka Sharma; Ralph L. Henry; Robyn L. Goforth; Alicia D. Kight. University of Arkansas, Fayetteville

*2<sup>nd</sup> Place*

**Mitochondrial CYP2E1 Drives Butadiene-induced Mitochondrial Dysfunction** by Jessica H. Hartman<sup>1</sup>; Andres A. Caro<sup>2</sup>; Gunnar Boysen<sup>1</sup>; Grover P. Miller<sup>1</sup>. University of Arkansas for Medical Sciences<sup>1</sup>; Hendrix College<sup>2</sup>

*3<sup>rd</sup> Place*

**Methanogens as Ideal Candidates for Life on Mars: Tolerance to Pressure, Temperature and Clays** by Rebecca L. Mickol<sup>1</sup>; Yuta A. Takagi<sup>2</sup>; Tim A. Kral<sup>1</sup>. University of Arkansas<sup>1</sup>; Oberlin College<sup>2</sup>

**UNDERGRADUATE ORAL PRESENTATION AWARDS:**  
**Molecular and Cellular Biology**

*1<sup>st</sup> Place*

**The Effects of Type of Information and Type of Exposure on Attitudes about Mental Illness** by Jessica Bonumwezi; Kelly Brice. Hendrix College

*2<sup>nd</sup> Place*

**Growth of Methanogens in the Presence of Perchlorate Salts: A Study for Possible Life on Mars** by John Cale; Rebecca L. Mickol; Tim A. Kral. University of Arkansas, Fayetteville

*3<sup>rd</sup> Place*

**Phenotypic Variation of a Segregating Blackberry Population for Molecular Marker Development** by Loren M. Anthony; John R. Clark; Daniela Segantini. University of Arkansas, Fayetteville

**GRADUATE POSTER PRESENTATION AWARDS:**  
**Field Biology and Ecology**

*1<sup>st</sup> Place*

**Population Dynamics of Chelonians in an Urban Lake in Jonesboro, Craighead County, Arkansas** by J.D. Konvalina; C.S. Thigpen; S.E. Trauth. Arkansas State University

*2<sup>nd</sup> Place*

**Vegetation Diversity in Natural and Restored Forested Wetland Sites in Southeast Arkansas** by Chris Sheldon; Robert L. Ficklin; Karen Fawley. University of Arkansas at Monticello

**UNDERGRADUATE POSTER PRESENTATION AWARDS:**  
**Field Biology and Ecology**

*1<sup>st</sup> Place*

**Distribution and Abundance of Introduced Seal Salamanders (*Desmognathus monticola*) in Northwest Arkansas, USA** by Clint Bush. University of Arkansas, Fayetteville

*2<sup>nd</sup> Place*

**An Ecological Study of the Burrowing and Feeding Habits of *Coronis scolopendra* Latreille (Stomatopoda: Nannosquillidae)** by Addison Ochs. Southern Arkansas University

**GRADUATE ORAL PRESENTATION AWARDS:**  
**Field Biology and Ecology**

*1<sup>st</sup> Place*

**Relative Wildlife Community Metrics within Arkansas State Parks** by Bennett Grooms<sup>1</sup>; Rachael Urbanek<sup>2</sup>. Arkansas Tech University<sup>1</sup>; University of North Carolina Wilmington<sup>2</sup>

*2<sup>nd</sup> Place*

**Allelopathic Influence of Eucalyptus on Three Common Kenyan Farming Crops** by Brandy Garrett Kluthe. University of Arkansas, Fayetteville

**UNDERGRADUATE ORAL PRESENTATION AWARDS:**  
**Field Biology and Ecology**

*1<sup>st</sup> Place*

**Indirect Effects of Leaf-cutter Ants on the Litter Arthropod Community in a Tropical Rainforest** by Rachel Wells<sup>1</sup>; Serena Murphy<sup>2</sup>; Matthew Moran<sup>1</sup>. Hendrix College<sup>1</sup>; University of Georgia, Costa Rica<sup>2</sup>

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*2nd Place*

**The Effects of Shade on Greenhouse-grown Primocane Fruiting Blackberries** by Olivia Caillouet; Curt Rom; Jason McAfee. University of Arkansas, Fayetteville

*3rd Place*

**Impacts of Shale Gas Development on Breeding Birds in the Eastern United States** by Kevin J. Krajcir; Annie Meek; Matthew D. Moran; Maureen R. McClung. Hendrix College

**UNDERGRADUATE ORAL PRESENTATION**

**AWARDS: Botany**

*1st Place*

**Phylogeography of Jeffrey Pine in the Klamath Mountains** by Julia Lefler; Ann Willyard. Hendrix College

*2nd Place*

**Mitochondrial Lineages of *Pinus ponderosa* s.l. in the USA and Related Species in Mexico and Central America** by Hassan Hussein Karemera; Ann Willyard. Hendrix College

**UNDERGRADUATE ORAL PRESENTATION**

**AWARDS: Physics**

*1st Place*

**The Effect of Space Radiation and Microgravity on Chromosome Aberrations in Human Endothelial Cells** by Cullen Shaffer<sup>1</sup>; Abdel Bachri<sup>1</sup>; Rupak Pathak<sup>2</sup>. Southern Arkansas University<sup>1</sup>; University of Arkansas for Medical Sciences<sup>2</sup>

*2nd Place*

**Electron Shock Waves with a Large Current behind the Shock Front** by Hunter Newberry; Mostafa Hemmati. Arkansas Tech University

**GRADUATE ORAL PRESENTATION AWARDS:**

**Physics**

*1st Place*

**Two-dimensional Disorder in Black Phosphorus and Monochalcogenide Monolayers at Finite Temperature** by Mehrshad Mehboudi<sup>1</sup>; Salvador Barraza-Lopez<sup>1</sup>; Alex M. Dorio<sup>1</sup>; Hugh O. H. Churchill<sup>1</sup>; Alejandro A. Pacheco-Sanjuan<sup>2</sup>; Edmund O. Harriss<sup>1</sup>; Pradeep Kumar<sup>1</sup>. University of Arkansas<sup>1</sup>; Universidad del Norte<sup>2</sup>

*2nd Place*

**Universal Energetic Coupling in Complex Antiferroelectric and Incommensurate Perovskites** by Kinnary Patel<sup>1</sup>; Sergey Prosandeev<sup>1,2</sup>; Yurong Yang<sup>1</sup>; Bin Xu<sup>1</sup>; Jorge Iñiguez<sup>3</sup>; L. Bellaiche<sup>1</sup>. University of Arkansas<sup>1</sup>; Southern Federal University, Russia<sup>2</sup>; Luxembourg Institute of Science and Technology<sup>3</sup>

*3rd Place*

**Double Groups in Molecular Physics** by Bradley Klee. University of Arkansas, Fayetteville

**UNDERGRADUATE POSTER PRESENTATION**

**AWARDS: Physics**

*1st Place*

**Nanoparticle Size and Shape Characterization with Solid State Nanopores** by Santoshi Nandivada; Jiali Li; Mourad Benamara. University of Arkansas, Fayetteville.

*2nd Place*

**Detect Binding Sites and Efficiency of Binding of RNAP Holoenzyme on  $\lambda$  DNA Attached to a Probe Tip with Solid State Nanopores** by Harpreet Kaur; Santoshi Nandivada; Mitu Chandra Acharjee; Changbae Hyun; Min Xiao; David McNabb; Jiali L. University of Arkansas, Fayetteville

**GRADUATE POSTER PRESENTATION**

**AWARDS: Physics**

*1st Place*

**Changes in Elasticity of Rat Bones Exposed to Simulated Microgravity and Radiation** by Hayley Heacox<sup>1</sup>; Lawrence M. Benzmilller<sup>1</sup>; Rahul Mehta<sup>1</sup>; Max Dobretsov<sup>2</sup>; Parimal Chowdhury<sup>2</sup>. University of Central Arkansas<sup>1</sup>; University of Arkansas for Medical Sciences<sup>2</sup>

*2nd Place*

**SIMION Model of an Electrostatic Positron Storage Ring** by Nicole Nichiniello; Jared Gavin. University of Arkansas at Monticello

*3rd Place*

**Measuring Nonlinear Parameters of Graphene Materials Using Z-Scan Technique** by Thekayat Alabdulaa; Gregory Salamo. University of Arkansas, Fayetteville

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**UNDERGRADUATE ORAL PRESENTATION**

**AWARDS: Computing Science**

*1<sup>st</sup> Place*

**A Support Vector Machine Based Model for Predicting Heparin-binding Proteins using XB patterns as Features** by Joseph Sirrianni; Wing Ning Li; Thallapuram Suresh Kumar. University of Arkansas, Fayetteville

**UNDERGRADUATE POSTER PRESENTATION**

**AWARDS: Computing Science**

*1<sup>st</sup> Place*

**Rules for Differentiating Between Non-Isomorphic Graphlets** by John Calvin Alumbaugh; Dale R. Thompson. University of Arkansas, Fayetteville

**GRADUATE POSTER PRESENTATION**

**AWARDS: Computing Science**

*1<sup>st</sup> Place*

**PrivacyCamera: Cooperative Privacy-Aware Photographing with Mobile Phones** by Ang Li<sup>1</sup>; Qinghua Li<sup>1</sup>; Wei Gao<sup>2</sup>. University of Arkansas<sup>1</sup>; University of Tennessee<sup>2</sup>

*2<sup>nd</sup> Place*

**The Effects of Denial-of-Service Attacks on Secure Time-Critical Communications in the Smart Grid** by Fengli Zhang; Qinghua Li; Chase Ross. University of Arkansas, Fayetteville

*3<sup>rd</sup> Place*

**IPv6 Security Performance Analysis** by Adrian Ordorica; Dale R. Thompson. University of Arkansas, Fayetteville

**UNDERGRADUATE ORAL PRESENTATION**

**AWARDS: Engineering**

*1<sup>st</sup> Place*

**Electrospun Poly-Ethylene Oxide Nanofibers** by Hope Schneider; Daniel Bullock; Jim Steuber. Arkansas Tech University

*2<sup>nd</sup> Place*

**Android Control of Science Instruments** by Daniel Grant; Maria Medrano; Edmond Wilson. Harding University

*3<sup>rd</sup> Place*

**Persistent and Controllable Weather Balloons as High Altitude Test Vehicle** by Maxwell Martin; Adam Huang. University of Arkansas Fayetteville

**GRADUATE ORAL PRESENTATION AWARDS:**

**Engineering**

*1<sup>st</sup> Place*

**Engineering Biphasic Janus-type Polymer-Protein Nanofibers via Centrifugal Jet Spinning** by Prashanth Ravishankar; Alex Khang; Kartik Balachandran. University of Arkansas, Fayetteville

*2<sup>nd</sup> Place*

**Effect of Quinhydrone-Methanol Passivation on Hydrogenated and Standard Boron Emitters** by Matthew Young; Hameed Naseem. University of Arkansas, Fayetteville

*3<sup>rd</sup> Place*

**Environmental Sustainability of Distribution-retail Networks in the United States** by Jasmina Burek; Darin Nutter. University of Arkansas, Fayetteville

**UNDERGRADUATE POSTER PRESENTATION**

**AWARDS: Engineering**

*1<sup>st</sup> Place*

**Properties of GaN/SiC Heterostructures for Harsh Environment Power Devices** by Stephanie Sandoval; Chen Li; Morgan Ware; Zhong Chen. University of Arkansas, Fayetteville

**GRADUATE POSTER PRESENTATION**

**AWARDS: Engineering**

*1<sup>st</sup> Place*

**Systematic Study of Si-based Ge/Ge<sub>0.9</sub>Sn<sub>0.1</sub>/Ge Photodiodes with 2.6  $\mu\text{m}$  Detector Cutoff** by Thach Pham. University of Arkansas, Fayetteville

*2<sup>nd</sup> Place*

**Optical Properties Study of Ge<sub>1-x</sub>Sn<sub>x</sub> Alloys by Spectroscopic Ellipsometry** by Huong Tran. University of Arkansas, Fayetteville

*3<sup>rd</sup> Place*

**Temperature Dependent Study of GeSn Light-emitting Diodes on Si for Mid-infrared Applications** by Yiyin Zhou. University of Arkansas, Fayetteville

**UNDERGRADUATE ORAL PRESENTATION**

**AWARDS: Geoscience**

**Lower Mississippian Chert Development, Southern Midcontinent Region** by Julie M. Cains. University of Arkansas, Fayetteville

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**GRADUATE ORAL PRESENTATION AWARDS:**

**Geoscience**

*1<sup>st</sup> Place*

**Sourcing Diagenetic and Mineralizing Fluids of Mississippi Valley-Type Ores along the Cincinnati Arch** by William Travis Garmon; Adriana Potra; Andrew H. Wulff. University of Arkansas, Fayetteville

*2nd Place*

**Comparison of the Elemental Geochemistry of the Boone Chert and the Arkansas Novaculite** by John Philbrick. University of Arkansas, Fayetteville

*3<sup>rd</sup> Place*

**GS-Carbon Sequestration at Pea Ridge National Military Park in NW Arkansas from a Terrestrial/Biological Perspective** by Dorine Reed Bower. University of Arkansas, Fayetteville

**GRADUATE POSTER PRESENTATION**

**AWARDS: Geoscience**

**Floodplain Soils—A Potential Source of Phosphorus to the Illinois River** by Megan Lord; Brian Haggard. University of Arkansas, Fayetteville

**APPENDIX B  
RESOLUTIONS**

**Arkansas Academy of Science  
100<sup>th</sup> Annual Meeting, 2016 Resolutions**

Be it resolved that we, the membership of the Arkansas Academy of Science (AAS) offer our sincere appreciation to University of Arkansas for hosting the 100th annual meeting of the Academy. We thank the local arrangements committee: R. Panneer Selvam (Chair), Collis Geren and Jim Rankin (Co-Chair) and the Provost and Deans who supported the awards and volunteering Faculties listed in the AAS proceedings.

We sincerely thank University of Arkansas for providing its facilities and service during the meeting and Chartwell for the catering service.

We especially thank our keynote speaker, Chancellor Joseph Steinmetz for his inspiring talk.

**The Academy recognizes the important role of our session chairs:** David Andrews (UAF), Abdel Bachri (SAU), Doug Barron (ATU), Van Brahana, (UAF retired), Daniel Bullock (ATU), James Daly (UAMS retired), Wei Du (UAF), Jess Kelly (Ouachita Baptist), Walt Manger (UAF retired), Travis D. Marsico (ASU), Grover Miller (UAMS), Dennis Provine (Harding), Andy Sustich (ASU), Abraham Tucker (SAU), Francis Umesiri (JBU), and Brian Wagner (AR Game & Fish)

**Even greater appreciation and sincere gratitude is extended to our dedicated judges for the student presentations including** David Andrews (UAF), Doug Barron (ATU), Van Brahana (UAF retired), Hugh Churchill (UAF), Steve Cooper (Harding), Wei Du

(UAF), Jared Gavin (UA Monticello), Collis Geren (UAF retired), Frank Hardcastle (ATU), Mostafa Hemmati (ATU), Salomon Itza (College of the Ozarks), Steve Moore (Harding), James Musser (ATU), Kim Needy (UAF), Antoinette Odendaal (SAU), Dennis Provine (Harding), Amber Sierra (ATU), Kim Smith (UAF), Mary Stewart (SAU), Suresh Thallapuram (UAF), Abraham Tucker (SAU), Teresa Turk (NOAA retired), Susan Wache (SACC), Jessica Young (ATU) and Andrew Zhou (UAF).

We congratulate our student researchers, scientists and engineers who presented papers and posters, whose efforts contribute directly to the future success of the Academy and the improvement of advancement of science in Arkansas.

The Academy recognizes its leadership and offers its thanks to this year's set of executive officers including Ann Willyard (President), Ed Wilson (President Elect), Abdel Bachri (Past President), Panneer Selvam (Vice President), Mostafa Hemmati (Treasurer and Journal Editor-in-Chief), Ivan Still (Journal Managing Editor), Panneer Selvam (Newsletter Editor), Salomon Itza (Webmaster), Collis Geren (Historian), and Jeff Robertson (Secretary).

Respectfully submitted on this 2<sup>nd</sup> day of April, 2016. Resolutions Committee: Ann Willyard (President), and Panneer Selvam (Chair of local organizing committee).

## Arkansas Academy of Science Meeting report

## 2016 MEMBERSHIP

## LIFE MEMBERS

## REGULAR MEMBERS

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Floyd	Beckford	Lyon College (formerly of)	Brent	Baker	Arkansas Natural Heritage Commission
Don	Bragg	USDA Forest Service	Doug	Barron	Arkansas Tech University
Wilfred J.	Braithwaite	University of Arkansas-Little Rock	Helen	Benes	UAMS
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Calvin	Cotton	Geographics Silk Screening Co.	Martin	Campbell	Henderson University
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Leo	Davis	Southern Arkansas University	Hugh	Churchill	University of Arkansas-Fayetteville
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Jim	Edson	University of Arkansas-Monticello	Matthew	Connior	Northwest Arkansas Community College
Kim	Fifer	UAMS	R. Jamie	Dalton	Arkansas Tech University
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Walter	Godwin	University of Arkansas-Monticello	Marvin	Fawley	University of Arkansas-Monticello
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Gary	Heidt	University of Arkansas-Little Rock	Gina	Hauptman	University of Arkansas-Fayetteville
Mostafa	Hemmati	Arkansas Tech University	Howard	Hendrickson	UAMS
Philip	Hyatt	Retired	Kamran	Iqbal	University of Arkansas-Little Rock
Shahidul	Islam	University of Arkansas-Pine Bluff	David	Jamieson	Crowder College
Cynthia	Jacobs	Arkansas Tech University	Olivia	Jamieson	University of Arkansas-Fayetteville
Douglas	James	University of Arkansas	Brandon	Kemp	Arkansas State University
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Art	Johnson	Hendrix College	Julia	Kennefick	University of Arkansas-Fayetteville
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Henry	Robison	Southern Arkansas University	Cheyenne	Sheppard	Arkansas State University
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David	Saugey	U.S. Forest Service	Mary	Stewart	University of Arkansas-Monticello
Panneer	Selvam	University of Arkansas-Fayetteville	Ryan	Stork	Harding University
Ivan	Still	Arkansas Tech University	Christopher	Thigpin	Arkansas State University
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Scott	White	Southern Arkansas University	Brian	Wagner	Arkansas Game and Fish
James	Wickliff	University of Arkansas	Kenneth P.	Wagner	UAMS (ret.)
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			Melissa	Welch	Philander Smith College

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