

Arkansas Academy of Science

AAS Newsletter 2019

Editor: R. Panneer Selvam

January 2019

Of Special Interest...

CALL FOR PAPERS

- 103rd Annual Meeting of the Academy
- AAS Student Research Grants
- Members Corner
- Editorial Note & Liaison Officers



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***You are encouraged to duplicate all or part of this document for dissemination amongst your colleagues. Encourage them to become members and to attend the annual meeting including the business meeting.

103rd Annual Meeting of the Academy at Hendrix!

The 103rd annual meeting of the Arkansas Academy of Science will be held on March 29-30, 2019 on the campus of Hendrix College.

Oral presentations will begin on Friday afternoon. Friday evening events will be held in the Hendrix College Student Life & Technology Center in the Worsham Student Programming Area. It will feature a dinner and keynote speaker. Oral presentations will continue on Saturday morning, and the poster session, to include all posters, will also be on Saturday morning. The **keynote speaker** will be Dr. Luis M. Bettencourt. Dr. Bettencourt is the inaugural Pritzker Director of the Mansueto Institute of Urban Innovation at the University of Chicago.

Participants will have the option of making an oral or poster presentation. Completed registration form, abstract(s), registration fee and membership dues must be received by March 1, 2019. The details of payment by web or mail are included on the registration form. Registration and abstract submission forms will be available online at www.hendrix.edu/aas2019/ after January 25.



For further information you can contact Dr. Todd Tinsley, 501-450-1404, email – tinsley@hendrix.edu.

Manuscripts for submission to JAAS Volume 73 should be submitted to the Journal Website by March 27. See Page 5 for more details.

AAS Business Meeting for Everyone

The annual business meeting for ALL members of the Academy will take place Saturday, March 30th, at noon in the Mills Center for Social Sciences Auditorium A after the final session.

Please make travel plans that will allow you to stay and attend the business meeting. The meeting is for you, and your attendance, contributions, expertise and insights make

the Academy of the highest quality and service to its membership.

Academy Officers on the **AAS Executive committee will convene on Friday, March 29th, at 10:00am** in the Campbell Dining Room North in the Student Life & Technology Center before the start of the AAS meeting sessions.

Information For Presenters

Information for Presenters

Presenters should clearly communicate any special equipment needs at the time of their registration. Computer projection systems for PowerPoint will be available.

All PowerPoint presentations must be on a USB flash drive and must be loaded onto the computer available in each session room prior to the start of the session. Therefore, if you plan to use PowerPoint, you must be at the session at least 30 minutes prior to the start of the session (i.e., if your talk is at 10:15, then you are in a morning session that begins at 9:00 a.m. You must be there at 8:30 a.m to load your talk onto the computer).

Abstract submission will be open for the 2019 AAS meeting soon. Abstracts must be submitted for both oral and poster presentations. Oral presentations are limited to 15 minutes (12 minute talk, 3 minutes for questions).

For optimal display, posters should be limited to 42 inches in both width and height. Vertical display boards will be available for poster displays. Poster sessions for all disciplines will be on Saturday morning.

Abstract submission and registration are online. Abstracts will be posted online within one week after they are received. Abstracts must be received

before the end of the day on **March 1st** for both oral presentations and posters. Be sure to submit your registration form as well.

The website should be ready for submissions by January 25.

JAAS Publication

JAAS Publication Manuscripts for publication in the Journal, based on a presentation given at the meeting, are to be submitted two days prior to the meeting, via the Journal website. See page 5 for brief information about publishing in the Journal.

PLEASE read instructions for prospective authors found on the Academy website <http://www.ArkansasAcademyofScience.org> (Journal tab)

Any questions can be directed to the Managing Editor of the Journal (Dr. Ivan Still, istill@atu.edu).

Membership and Registration Fee Payments & Other Details

Please complete the membership and registration forms at www.hendrix.edu/aas2019/ after January 25.

You can also make online payments for membership and registration at the same website. If you are paying by check, you can send the detailed information of the individuals along with a check made out to Hendrix College with AAS 2019 in the memo line to Susan Ablondi, Hendrix College, 1600 Washington Ave., Conway, AR 72032.

<http://www.ArkansasAcademyofScience.org> (Meetings tab)

Keynote Speaker

Professor Luis Bettencourt, University of Chicago, Department of Ecology and Evolution, Pritzker Director of the Mansueto Institute for Urban Innovation



In his research, Luis Bettencourt, the inaugural Pritzker Director of the Mansueto Institute for Urban Innovation, uses data on topics ranging from transportation to housing, to understand cities in quantitative and predictive ways. He creates new urban theory that helps to explain how cities thrive and the challenges they face, based on the integration of ideas from such urban disciplines as geogra-

phy, economics, and sociology, using methodologies from the natural and computational sciences. He also focuses on understanding the role of innovation and technological change as a driver of economic growth and human development in cities around the world and throughout history. One of his most influential research projects has helped explain the systematic association between the size of urban areas and higher rates of economic productivity and innovation, as well as higher costs of living and violent crime.

Bettencourt received a doctorate in theoretical physics from Imperial College London. He held postdoctoral positions at Los Alamos National Laboratory, the University of Heidelberg, and the Massachusetts Institute of Technology. He served on the 2015 President's Council of Advisors on Science and Technology working group on technology and the future of cities, and was a Kavli Fellow for the National Academy of Sciences' Frontiers of Science Symposium. He comes to the University from the Santa Fe Institute, where he was a professor of complex systems.

Editor's Corner: I have been contacting different Universities for a Liaison Officer to AAS. I have names from ATU, HSU, PSC, SAU, UARK and ASU. So if you are interested to serve the AAS, please feel free to contact me: R. Panneer Selvam, UARK, email: rps@uark.edu, ph: (479)575-5356

Please feel free to give your feedback to improve the news items.

Tentative Schedule of Events

Time	Event	Location
Friday, March 29th		
10:00	Executive Committee Meeting	SLTC-Campbell Dining North
11:00-5:00	Registration and Payments	
12:00-12:30	Judges and Session Chairs	SLTC-105
1:00-2:30	Oral Sessions 1	DW Reynolds
2:30-3:00	Break -Refreshments	DW Reynolds
3:00-4:30	Oral Sessions 2	DW Reynolds
6:00-8:30	Banquet and Keynote Address	SLTC-Worsham
Saturday April 7th		
8:00-9:00	Continental Breakfast	SLTC-Burrow
8:00-10:00	Registration and Payment	SLTC-106
8:30-10:30	Oral Sessions 3	DW REynolds
8:30-11:00	Posters	SLTC-Worsham
	(Judging ends at 10:30)	
10:30-11:30	Meeting of Judges	SLTC-106
12:00-1:00	Awarding of Prizes	Mills Center-A
	AAS Business Meeting	

DW Reynolds – Donald W. Reynolds Center for Life Sciences
Mills Center – Mills Center for Social Sciences
SLTC – Student Life & Technology Center

****All members of the Academy are invited and strongly encouraged to participate in the AAS business meeting.****

A copy of this Newsletter as well as previous editions are available ONLINE in the AAS members web pages accessed through the public portal at URL:

<http://www.ArkansasAcademyofScience.org>

Summary of Schedule

Mar 1 – Undergraduate Research Award proposals
Mar 1 – Registration, abstracts, payment of registration and dues
Mar. 27 – JAAS manuscript (if submitting for review)
Mar 29 – 11 AM – Registration opens

2018 AAS Executive Officers

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Dr. Mostafa Hemmati Treasurer

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Please mail membership dues to the above address!!!.

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Aren't you the right person to step up to a leadership role?

Journal of the Arkansas Academy of Science (JAAS):

Manuscripts for publication in the *JOURNAL*, based on a presentation given at the meeting, are due two days prior to the annual meeting. One of the authors must be an AAS member to publish in the *JOURNAL*. Manuscripts must be submitted to the *JOURNAL* website: <http://scholarworks.uark.edu/jaas/>. Authors and co-authors who have submitted manuscripts via the system previously, should use the contact/email and password that they used previously. New authors should follow instructions on the site to establish their profile. Authors can subsequently update their profile with any changes to their contact and account info as necessary. Should you have any problems, please contact the Managing Editor (istill@atu.edu).

Comments for Prospective Authors

Authors are required to use the instructions found on the AAS website in preparing manuscripts submitted for publication in the *JOURNAL*. Authors are directly responsible for the major formatting of their article and, thus, manuscripts must be properly formatted PRIOR to submission. **Of particular importance is proper setting of margins, line and paragraph spacing.** Figures and tables must be inserted into their appropriate locations in the manuscript. A caption should be written under each figure and above each table. The editor and printer do no significant retyping or editing and only act to assemble the *Journal*. The electronic copy of the manuscript (word document, not pdf) should be a single file. To view and/or download new instructions visit the Academy website. Please note that after successful review **the final product submitted by the authors will be the published document in the *Journal*.**

All manuscripts must be submitted electronically via the *JOURNAL* website: <http://scholarworks.uark.edu/jaas/> with the entire review and publication procedure being handled via the server. Please allow time to get use to the new system. E-mailed manuscripts will no longer be accepted.

To avoid rejection at Editorial review, PLEASE read the instructions for prospective authors found on the Academy website: <http://www.arkansasacademyofscience.org/aasjournal.html> (**Journal tab**). The instructions and policies can also be accessed by following the links from the *Journal* web site.

Reviewers, Associate Editors and future Managing Editor Solicited

Persons interested in acting as Reviewers in their field of expertise of manuscripts submitted for publication in the AAS

Journal are needed. We are asking for members who wish to become more involved with the production of the *JOURNAL* to consider becoming Associate Editors of the *JOURNAL*. In particular, we are looking for Associate Editors for Zoology (Invertebrate and/or Vertebrate) and Botany. We are also looking for members who would like to become the Managing Editor when Dr. Still retires after Volume 75 in 2021.

If you are interested in any of the above, please contact Mostafa Hemmati (mhemmati@atu.edu) or Ivan Still (istill@atu.edu) by e-mail and provide your contact information and area(s) of expertise. For potential reviewers, please be specific about the individual subjects you wish to review. (e.g. not just Botany, but herbaceous plants, or woody plants, or aquatic plants; and not just vertebrates, but reptiles, particularly snakes.)

Awards competition for student presentations at the AAS Meeting: Students commonly present results of their research at the annual meetings of the Arkansas Academy of Science. Our award competition seeks to recognize outstanding presentations made by these students. Categories for oral presentation awards include Life Science and Physical Science, at both the undergraduate and graduate levels of competition. Certificates and cash awards may be given for first place (\$100), second place (\$50), and third place (\$50). Awards for the best overall undergraduate and graduate poster presentations will also be made.

Student presenters interested in any of these competitions should indicate their desire to compete on their submitted abstract. Presentations and posters not specifically entered into the competition will not be judged, nor will they be eligible for an award.

Arkansas Academy of Science PERMANENT ONLINE HOME:

AAS Web Pages: The official website of the Academy now has a permanent public portal whose web address will never change although internal links for member pages might whenever the host migrates. Always access the online Academy pages from the permanent public portal...

<http://www.ArkansasAcademyofScience.org>

Accommodations in Conway (around Hendrix College)

The following hotels have blocks of rooms reserved for the Arkansas Academy of Science annual meeting. These hotels are within a mile of campus (you can walk through the beautiful Hendrix Village) and include continental breakfast, parking and high-speed internet access.

Fairfield Inn & Suites \$89/night plus tax (Arkansas Academy of Science Group Code G5295), Rooms held until 2/28/19, 2260 Sanders Road, Conway, AR , 501-505-8034

La Quinta Inn & Suites - \$79/night plus tax (ARK ACAD OF SCIENCE CONF – HENDRIX confirmation number 6281830) , Rooms held until 3/15/19, 2350 Sanders Road, Conway, AR , 501-328-5100

Holiday Inn Express & Suites - \$90/night plus tax (Group Code HDX) , Rooms held until 3/15/19, 2330 Sanders Road, Conway, AR , 501-205-1315

Besides these hotels, Conway has many other hotels and motels; most of them close to Interstate 40 and not too far from campus. These hotels include, Best Western, Comfort Inn & Suites, Comfort Suites, County Inn & Suites by Radisson, Home2 Suites by Hilton, Hilton Garden Inn, Microtel Inn & Suites by Wyndham, and others. Costs and other information about these hotels can be found by contacting them directly.

Parking

We are asking that our participants park in the Wellness & Athletic Center parking areas on the east side of campus and use our convenient pedestrian overpass which will take you to the Student Life & Technology Center. If additional parking is needed, please see our campus map for other parking areas on the east side of campus. Visitors are allowed to park in any parking on campus except those designated “service” and only in accessible parking if the proper tags are shown.

A map of campus can be found at <https://www.hendrix.edu/campusmap/>

Organizing Committee:

Todd Tinsley (Physics), Chair, tinsley@hendrix.edu
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Maureen McClung (Biology), mcclung@hendrix.edu
Susan Ablondi (Natural Science Admin), ablondis@hendrix.edu

Arkansas Academy of Science

Undergraduate Research Awards (up to \$1000)

Applications available at
<http://www.arkansasacademyofscience.org/>

Applications are due: March 1, 2019

To send applications or for more information
contact:

Dr. Stephen R. Addison saddison@uca.edu
(501) 450-3199



2018 AAS PRESENTATION AWARD WINNERS (awardees are underlined)

UNDERGRADUATE ORAL PRESENTATION AWARDS: Biology

1st Place (Tie)

Culture-independent analysis of Hot Springs National Park thermophiles by Taylor Stone; Richard C. Murray; Matthew D. Moran. Hendrix College

Effects of recreational boat noise on avoidance and feeding behaviors in an important freshwater stream fish by Claire Turkal; Trystin F. Anderson; Maureen R. McClung. Hendrix College

UNDERGRADUATE POSTER PRESENTATION AWARDS: Biology

1st Place

Genetic engineering of the Mad locus using CRISPR/Cas-9 and Phi-C31 recombination by Jeremy Brown. Southern Arkansas University

GRADUATE ORAL PRESENTATION AWARDS: Biology

1st Place

Distribution Records of the Chestnut Lamprey in Arkansas by Jeremiah Salinger; Ron Johnson. University of Arkansas at Pine Bluff

GRADUATE POSTER PRESENTATION AWARDS: Biology

1st Place

Molecular Mechanisms Underlying the Higher Biomass and Abiotic Stress Tolerance Phenotype of Arabidopsis MIOX Overexpressers by Nirman Nepal; Jessica P. Yactayo Chang; Lucia M. Acosta-Gamboa; Karina Medina-Jimenez; Mario A. Arteaga-Vasquez; Argelia Lorence. Arkansas State University

2nd Place

Investigation of the function of a putative cysteine synthase homolog in Mycobacterium smegmatis using unmarked gene deletion mutation by Saroj Mahato; Ravi D. Barabote. University of Arkansas

UNDERGRADUATE ORAL PRESENTATION AWARDS: Ecology

1st Place

Valuation of ecosystem services of the Arctic National Wildlife Refuge by Margaret Young; Adam C. Turner; Matthew D. Moran; Maureen R. McClung. Hendrix College

2nd Place

Aerobic Pushups: Cutaneous Ventilation in Overwintering Smooth Softshell Turtles, *Apalone mutica* by Caleb O'Neal; Michael V. Plummer. Harding University

UNDERGRADUATE ORAL PRESENTATION AWARDS: Chemistry & Geosciences

1st Place (Tie)

Development of a Novel Method for Purification of Recombinant Proteins by Amberly Vaughan; Musaab Al-Ameer; T.K.S. Kumar. University of Arkansas

Quantification of Brominated Vegetable Oil in Beverages by LC-MS by Katie Farmer. Harding University

UNDERGRADUATE POSTER PRESENTATION AWARDS: Chemistry & Geosciences

1st Place

Novel Peptoids as Antimicrobial Agents by Eliza Hanson; Francis Umesiri. John Brown University

2nd Place

Extraction and Quantitation of Heterocyclic Aromatic Amines from Cooked Bacon using Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry by Emily Joy Seminara; Lora J. Rogers; Susan Kadlubar; Howard Hendrickson. Hendrix College

GRADUATE ORAL PRESENTATION AWARDS: Chemistry, Geosciences & Engineering

1st Place (Tie)

Phenomics Approaches to Elucidate the Contribution of the Four Ascorbate Pathways to Abiotic Stress Tolerance in Arabidopsis by Lucia Acosta-Gamboa; Nirman Nepal; Zachary C. Campbell; Shannon Cunningham; Karina Medina-Jimenez; Argelia Lorence. Arkansas State University

Variable Frequency Drives, Providing Energy Efficiency and Enhanced Crop Production in Agriculture While Improving Water Management Processes by Robert Straitt; Rajesh Sharma; Paul Mixon; Steve Green; Andrzej Rucinski; Nadya Reingand; Christophe Paoli; Dwight Ellis. Arkansas State University

GRADUATE POSTER PRESENTATION**AWARDS: Chemistry***1st Place*

Identification of a novel glucan crosslink to feruloylated arabinoxylan in rice bran fiber by Kan Takahashi; Brett Savary. Arkansas State University

UNDERGRADUATE ORAL PRESENTATION**AWARDS: Engineering, Math, Physics & Computer Science***1st Place*

An Interacting Model between Dark Energy and Dark Matter by Yosuke Kitakaze; Jesse Griffiths. Arkansas Tech University

UNDERGRADUATE POSTER PRESENTATION**AWARDS: Engineering & Physics***1st Place*

Stratospheric Ballooning RGB System for LiDAR Measurements by Patrick Tribbett; Ross Carroll. Arkansas State University

2nd Place

Rutherford Backscattering Spectrometry by Paul Niyonkuru. University of Central Arkansas

GRADUATE POSTER PRESENTATION**AWARDS: Engineering***1st Place*

Anomalous electrostatic nature of charged particles: An approach towards stable equilibrium in inverted systems by Tamal Sarkar. Arkansas State University

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