

OFFICIAL PROGRAM  
OF THE  
105th ANNUAL TECHNICAL MEETING

## ***OKLAHOMA ACADEMY OF SCIENCE***

Affiliated with the  
American Association for the Advancement of Science



FRIDAY  
November 4, 2016

Oklahoma State University  
Center for Health Sciences

OKLAHOMA ACADEMY OF SCIENCE

Established in 1909

“The purpose of the Academy shall be to stimulate scientific research; to promote fraternal relationship among those engaged in scientific work in Oklahoma; to diffuse among the citizens of the State a knowledge of the various disciplines of science; and to investigate and publicize the human, natural and educational resources of the State.”  
(Article 1, Section 2 OAS Constitution)

### Activities of the Academy

- Publishes *the Proceedings of the Oklahoma Academy of Science*, *Annals of the Oklahoma Academy of Science* and *Transactions of the Oklahoma Junior Academy of Science*.
- Hosts the Annual Technical Meeting for the presentation of scientific papers by both professional and collegiate scientists.
- Sponsors symposia on selected topics of timely and vital interest to the State and Nation.
- Arranges spring and fall field meetings in different biogeographic regions of the State.
- Coordinates and promotes the activities of the Oklahoma Junior Academy of Science.
- Supervises the activities of the Oklahoma Collegiate Academy of Science.
- Provides research grants and scholarship awards to outstanding proposals submitted by secondary school and undergraduate college students.
- Provides scientific consultation services to governmental and private agencies throughout the State.

## PROGRAM SUMMARY

### Thursday, 3 November 2016

6:00 p.m. Executive Council Dinner/Meeting ..... Room E-202  
Barson Building

### Friday, 4 November 2016

7:30 a.m. Registration for Technical Meeting ..... atrium  
- 1:30 p.m. east end of Founder's Hall

8:30 a.m. Concurrent Scientific Paper Sessions  
- 11:00 a.m.

Section A Biological Sciences – Botany ..... E-202  
Section A Biological Sciences – Zoology ..... E-202  
Section B Geology ..... D-113  
Section C Physical Sciences ..... D-201  
Section D Social Sciences ..... D-201  
Section E Science Communication and Education ..... D-110  
Section F Geography ..... D-111  
Section G Applied Ecology and Conservation ..... D-112  
Section H Microbiology ..... D-207  
Section I Engineering Sciences ..... D-209  
Section J Biochemistry and Biophysics ..... D-111  
Section K Microscopy ..... E-378  
Section L Mathematics, Statistics, & Computer Science ..... D-209  
Section M Environmental Sciences ..... D-112  
Section N Biomedical Sciences ..... D-107

Special Tables ..... Founder's Hall Atrium  
Refreshments ..... Founder's Hall Atrium

11:00 a.m. Section Meetings ..... Presentation Rooms  
- 11:30 a.m.

11:30 a.m. Academy Business Meeting ..... D-107  
All OAS members are encouraged to attend. Visitors are welcome.

12:00 p.m. .... Academy Luncheon & Speaker  
-1:30pm Founder's Hall  
(Admission by ticket only)

1:30 p.m. Poster Presentations.....Founder's Hall West End  
- 3:00 p.m. (Setup anytime before 1:30pm)

1:30 p.m. Concurrent Scientific Paper Sessions  
- 4:00 p.m.

## *Luncheon Speaker*

Dr. Robert W. Allen  
Chair and Professor of Forensic Sciences  
School of Forensic Sciences  
Oklahoma State University Center for Health Sciences

### *“History and evolution of forensic genetics”*

Dr. Robert W. Allen serves as Professor of Forensic Science and head of the School of Forensic Sciences at Oklahoma State University. He is also the Director of the Human Identity Testing laboratory at OSU-CHS

Dr. Allen received a B.S. (Zoology) at the University of Tulsa in 1972 and a PhD (Cell Biology) from Purdue University in 1977. He then was awarded a Post-Doctoral appointment to Scripps Clinic and Research Foundation in 1981.

Dr. Allen worked with the American Red Cross Regional Blood Services in St. Louis between 1980-1992, developing the first DNA typing laboratory in Missouri in 1985. He also performed forensic DNA analysis for St. Louis County Police Department during that period.

Dr. Allen moved to Children's Medical Center in Tulsa in 1992, where he developed first DNA typing laboratory in Oklahoma. He also performed forensic DNA work for Tulsa Police Department.

Dr. Allen joined the faculty at OSU's Center for Health Sciences in 2001, where he continues today. His research interest focuses on the variability in human DNA and what it tells us about an individual. Current projects include: 1) degradation of mRNA in body fluid stains as an indicator of age of the stain, 2) molecular autopsy to identify genetic lesions underlying sudden unexplained death, and 3) new and improved methods to collect biological stains at a crime scene.

## GENERAL INFORMATION

**Name Badges:** Name badges, provided upon registration, must be worn at all times by all individuals attending Academy section programs, business meetings, and luncheon. If your badge is not visible, you may be asked to leave by the persons in charge. Lost badges may be replaced at the registration desk upon verification of your registration documents. **All presenters must register and wear an official name badge.**

**On-site Registration Fees:**

Member	- \$20.00
Non-member	- \$25.00
Student presenter	- \$20.00
Student non-presenter	- \$10.00
Luncheon tickets (if available)	- \$20.00

**2016 and 2017 Dues are Payable:** The OAS registration desk will accept dues payments.

Professional	- \$30.00
Graduate/Undergraduate Student	- \$20.00
Family	- \$35.00
Life	- \$600.00

**Guidelines for Abstract Publication:** Abstracts may be published in the *Proceedings of the Oklahoma Academy of Science*, subject to the editorial policies as stated in the most recent issue of the *POAS* and the review of the Editorial Board. Specific formatting instructions for abstracts may be found at [www.oklahomaacademyofscience.org](http://www.oklahomaacademyofscience.org). Abstract publication fee is \$35. *POAS* editor is Dr. Mostafa S. Elshahed, [mostafa@okstate.edu](mailto:mostafa@okstate.edu).

**Executive Director:** Inquiries concerning upcoming OAS activities and membership may be directed to Dr. David Bass, OAS Executive Director, Campus Box 90, University of Central Oklahoma, Edmond OK 73034, 405-974-5772, [dbass@uco.edu](mailto:dbass@uco.edu).

**Assistance or Information:** Look for individuals with OAS badges or host ribbons. These are faculty and staff assigned to assist you.

**No Smoking:** Please, no smoking in any of the buildings on the campus.

**Refreshments:** Light refreshments during morning breaks will be in the atrium of Founder's Hall.

## SECTION BUSINESS MEETINGS

Section A: Biological Sciences (Zoo and Bot)	11:15-11:30, E-202
Section B Geology	11:00-11:15, D-113
Section C Physical Sciences	11:00-11:15, D-201
Section D Social Sciences	11:15-11:30, D-201
Section E Science Communication and Education	11:00-11:15, D-110
Section F Geography	11:00-11:15, D-111
Section G Applied Ecology and Conservation	11:00-11:15, D-112
Section H Microbiology	11:15-11:30, D-207
Section I Engineering Sciences	11:15-11:30, D-210
Section J Biochemistry and Biophysics	11:15-11:30, D-111
Section K Microscopy	TBD, E-378
Section L: Mathematics, Stats, & Comp. Science	11:15-11:30, D-209
Section M Environmental Sciences	11:15-11:30, D-112
Section N Biomedical Sciences	11:15-11:30, D-107

---

## SPECIAL THANKS

Dr. Stephens and the Administration of OSU-CHS for supporting this meeting.  
Staff Members, Bria' Taylor and Darin Tyson, for all their help in making this meeting possible.

Dr. Earl L. Blewett, OAS Meeting Coordinator

## UPCOMING MEETINGS

2017	Spring Field Meeting, March 31-April 2, Robbers Cave State Park
2017	Fall Field Meeting, tba
2017	Annual Technical Meeting, tba

**SECTION A: BIOLOGICAL SCIENCES – BOTANY**  
**E-202**

**Moderator: Chad King**  
**University of Central Oklahoma**

- 8:30 \*\*A new spinypod from Northeast Texas, *Matelea hirtelliflora* and a synopsis of it's relatives. Angela McDonnell. Oklahoma State University.
- 8:45 Vascular flora of Hafer Park, an urban park in Edmond, OK. Glora Caddell, Katie Christoffel, Carmen Esqueda, and Alonna Price. University of Central Oklahoma.
- 9:00 \*Effects of fire intensity on habitat recovery in a mixed grass prairie ecosystem. Laura E. Jardine, Adam K. Ryburn, and Anthony J. Stancampiano. Oklahoma City University.
- 9:15 The Subspecies of Antelope-horn Milkweed (*Asclepias asperula*, Apocynaceae) Merit Taxonomic Recognition. Mark Fishbein. Oklahoma State University.
- 10:15 Flora of Oklahoma Annual Meeting – Adam K. Ryburn (editor)  
**NOTE: Held in room D-113.**

Posters

\*Isolation and Analysis of GAPDH of Flowering Plants in the Oklahoma Central Plains. Fatima Abu-Saleh, Melissa Gates, Stephen Grace, Michael Hilton, Cassandra Pickerel, Taylor Russell, Jessica Vallejo, and Diana Spencer. Tulsa Community College.

\*A Survey of the Rhizosphere Microbial Community of Grasses and Legumes Using 16S rRNA Amplification. Jacob Beckham and Diana Spencer. Tulsa Community College.

\* Undergraduate \*\* Graduate

**SECTION A: BIOLOGICAL SCIENCES – ZOOLOGY**  
**E-202**

**Moderator: Michael Shaughnessy**  
**Northeastern State University**

- 9:45 \*Small mammal assemblage composition and habitat usage in a semirural landscape. Cassandra Velasco and Anthony J. Stancampiano. Oklahoma City University.
- 10:00 \*Habitat Selection, Nest Box Usage, and Reproductive Success of Secondary Cavity Nesting Birds in a Semirural Setting. Alanah N. Hosford, Laura E. Jardine, and Anthony J. Stancampiano. Oklahoma City University.
- 10:15 \*\*Macronutrient Effects on Early Carnivore Growth. Will Wiggins and Shawn Wilder. Oklahoma State University.
- 10:30 \*\*Fitness correlations with juvenile color in *Crotaphytus collaris*. J.M. Wiggins, R.A. Van Den Bussche, J.L. Grindstaff, and S.F. Fox. Oklahoma State University.
- 10:45 \*\*Comparing Predators and Predation Rates of Scissortailed Flycatchers Between Two Habitat Types. Dana R. Winters, Diane V. Roeder, and Michael S. Husak. Midwestern State University.
- 11:00 Dominance relationships in juvenile five-lined skinks (*Plestiodon fasciatus*): does small size matter?. Mark A. Paulissen. Northeastern State University.

Posters

\*\*Differentiating Between Partner Preferences and Lasting Pair Bonds. Amie D. Francis, Stephanie M. McGlothlin, and J. Thomas Curtis. Oklahoma State University.

Flooding mediates homogenization of above and belowground invertebrate communities. Diane V. Roeder and Karl A. Roeder. Cameron University.

\* Undergraduate \*\* Graduate

**SECTION B: GEOLOGY  
D-113**

**Section Chair: Kurtis Koll  
Comanche Nation College**

11:00 Section B Business Meeting

**SECTION C: PHYSICAL SCIENCES  
D-201**

**Moderator: Weldon Wilson  
University of Central Oklahoma**

- 8:30 Gamma Analysis of Trinitite. K. A. Williams. East Central University.
- 8:45 Bohr Model of Hydrogen-Like Atom in 2D. W. J. Wilson (UCO), and Ameer Al-Temimy (Al-Nahrain Nanotechnology Research Center for Renewable Energy Al-Nahrain University, Baghdad, Iraq). University of Central Oklahoma.
- 9:00 \*Time Resolved UV-VIS Spectroscopy for Monitoring Peroxide Vapors. Meagan E. Bobo (OC), Dr. Nicholas Materer (OSU), and Dr. Allen Aplett (OSU). Oklahoma Christian University.
- 9:15 \*Determining Phase and Group Velocities Through Various Media. Kristian Castellanos and Karen Williams. .
- 9:30 Break
- 9:45 \*A Mechanistically Unique Approach to Ketone Synthesis: Dual Catalytic Ni/Ti Cross-Couplings of Nitriles with Organo-Halides. Sylvie Muhimpundu (OC), Sajan Silwal (OSU), Vinoth Chenniappan (OSU), Ronald J. Rahaim (OSU). Oklahoma Christian University.
- 10:00 \*Zener Gravitational Wave Detection Apparatus. Timothy VanZant, Jacob Singleton, Cole Prather, and Cody Logston. University of Central Oklahoma.

Posters

A Computational Study of the Stability of substituted 2-silapyridines. Daniel McInnes and Austin Walker. East Central University.

**SECTION D: SOCIAL SCIENCES  
D-201**

**Section Chair: Alicia Limke  
University of Central Oklahoma**

- 1:30 **\*\*#WorthIt: Conflict Resolution Changes by Relationship Distance and Attachment.** Tristan Bratcher and Alicia Limke. University of Central Oklahoma.
- 1:45 **\*\*Physiological Measures of Anti-social Behavior within Psychopathy.** Kruti Chaliawala and Nora Gayzur. University of Central Oklahoma.
- 2:00 **\*\*Confession Rates: Does Persuasion Resistance Time Reduce Them?.** Karissa Dugger, Olivia Sharp, Heather Sherwood, and Robert Mather. University of Central Oklahoma.
- 2:15 **\*\*Attachment to God by Religious Affiliation.** Margaret Engelhard, Alicia Limke, Sarah Amin, Raksha Poojar, Shanmukh V. Kamble. University of Central Oklahoma.
- 2:30 Break
- 2:45 **\*\*Expressions of Threat: Micro-Expressions in Response to Immanent Aggression Facial Expressions.** Stephanie Lieber. University of Central Oklahoma.
- 3:00 **\*Perceptions of Multi-Level Marketing with MBA Students.** Olivia Sharp and Robert Mather. University of Central Oklahoma.
- 3:15 **\*Children's Vulnerability to Homicide, Abduction, or Infanticide Correlates with the Seasons.** Heather Sherwood and Robert Mather. University of Central Oklahoma.

Posters

- \*\*Finding Flow for Free: The Flow Experience in Volunteerism.** Jonathan D. Becker and Jennifer L. Kisamore. University of Oklahoma.
- \*\*Dynamic Mu Wave Desynchronization in Response to Vicarious Pain.** Justin Durham, Chanda Rooney, Robert Mather, and Mickie Vanhoy. University of Central Oklahoma.

\* Undergraduate \*\* Graduate

**SECTION E: SCIENCE COMMUNICATION & EDUCATION  
D-110**

**Moderator: Stanley Rice  
Southeastern Oklahoma State University**

- 10:30 Classroom-based research experiences in a non-majors core course: a successful strategy. Valerie A. O'Brien. Tulsa Community College.
- 10:45 An Economic Approach to Teaching Biological Sciences. Stanley A. Rice. Southeastern Oklahoma State University.

Posters

You are What You Eat: A Summer Academy for rising Eighth and Ninth Graders. Charles M. Crittall and Dan M. McInnes. East Central University.

\* Undergraduate \*\* Graduate

**SECTION F: GEOGRAPHY  
D-111**

**Moderator: Brad Bays  
Oklahoma State University**

- 9:45 \*Oklahoma City Planning Department Internship. Maxton Harris. University of Central Oklahoma.
- 10:00 \*Indian Allotment Project: Establishing Chickasaw Boundaries. Derrick Jackson. East Central University.
- 10:15 \*Agricultural Land Tax Assessment in Oklahoma. Matthew Lowe. East Central University.
- 10:30 \*Establishing Property Descriptions in Washington and Osage Counties. Jimmy Marsh. East Central University.
- 10:45 Using Geospatial Technologies to Optimize Rural Field Data Collection for Historic Preservation Planning.. Brad A. Bays. Oklahoma State University.

Posters

- \*Chickasaw Land Patents in Mississippi. Colton Hall. East Central University.

**SECTION G: APPLIED ECOLOGY & CONSERVATION  
D-112**

**Section Chair: Jerry Bowen  
Rogers State University**

- 9:30 \*\*Ecological Assessment of Nutrient Availability in Subterranean Streams to Determine Habitat Suitability for Cavefish in the Arbuckle Mountains, Oklahoma. Kevin W. Blackwood, Britney J. Temple, Stacy I. Blackwood, Laine A. Sanders, and Kaitlyn S. Beard.
- 9:45 \*\*Small mammal herbivores or soil nitrogen: What controls grasslands?. Nicole Poe and Lara Souza. University of Oklahoma.
- 10:00 Invasion biology: the dispersal of a non-native land snail in an urban landscape. Elizabeth A. Bergey. University of Oklahoma.
- 10:15 Response of public interest in the environment to the papal environmental encyclical, Laudato Si. Malcolm L. McCallum. Langston University.
- 10:30 \*Mitigated Creek Turnpike Wetlands: Success or Succession? A comparison of vegetative surveys from 1992-97, 2011-12, and 2016.. Jared Jarrell, Ashley Sweeney, and Hal C. Reed. Oral Roberts University.
- 10:45 \*Effects of fire intensity on small mammal communities— 5 years post fire. Laura E. Jardine and Anthony J. Stancampiano. Oklahoma City University.

Posters

- \*Spatial Variability of Reservoir Sediment Physical Properties As Affected by Land Use and Climate Variability. Danielle E. Stewart, Maci R. Harjo, Hollie M. Skibstead, Alan Versor, and Daniel Moriasi. Redlands Community College.

**SECTION H: MICROBIOLOGY  
D-207**

**Moderator: Paul Lawson  
University of Oklahoma**

- 8:30 \*\*Methodological Improvements in Recovering Ancient DNA from Coprolites for Metagenomics. Richard W. Hagan. University of Oklahoma.
- 8:45 \*\*Progression of the oral microbiome from infancy to adulthood. DK Jacobson, K Sankaranarayanan PS Larson N Watanabe, T Tanihata, JK Lum, and CM Lewis. University of Oklahoma.
- 9:00 \*\*Intracellular Calcium Homeostasis Regulates Several Physiological Events in a Human Pathogen *Pseudomonas aeruginosa*.. Sharmily S. Khanam, Manita Guragain and Marianna A. Patrauchan. Oklahoma State University.
- 9:15 \*\*A  $\beta$  Propeller Protein, CarP, Plays Role in *Pseudomonas aeruginosa* Response to Calcium. Michelle King, Mariette Barbier, and Marianna A. Patrauchan. Oklahoma State University.
- 9:30 \*\*Genomic and Physiological Characterization of Novel Bacteriophages Infecting Shiga-toxigenic *Escherichia coli*. Pushpinder Kaur Litt (OSU), Earl Blewett (OSU-CHS), and Divya Jaroni (OSU). Oklahoma State University.
- 9:45 Break
- 10:00 \*\*Isolation and Characterization of a Mycobacteriophage from Oklahoma Soil. Christopher Patton. University of Central Oklahoma.
- 10:15 \*\*Isolation and Characterization of novel species belonging to the genus *Peptoniphilus*. Liz Saavedra (OU), Ed Moore (University of Gotherburg), and Paul A. Lawson (OU). University of Oklahoma.
- 10:30 \*\*Tick Borne Pathogens in Urban and Rural Parks of Edmond, Oklahoma. Mariah Small. University of Central Oklahoma.
- 10:45 \*Characterization of Plant Pathogenic Diaporthe Species Infecting Melons Imported From Central America. M. Broge, C. Biles, A. Howard, K. Karki, and B. Bruton. East Central University.
- 11:00 \*Metabolic changes of *Chaetomium globosum* grown on low levels of NSAID amended media.. Yanet Camarena, Tyler Rowsey, Kimberly Condry, and Charlie Biles. East Central University.

\* Undergraduate \*\* Graduate

**SECTION H: MICROBIOLOGY  
(cont.)**

- 1:30 \*Generating mutations for functional studies of the putative Ca<sup>2+</sup>-binding protein CarP.. Daniel McLeod, Michelle King, Sharmily Khanam, and Marianna Patrauchan. Oklahoma State University.
- 1:45 \*Quantitative and Qualitative Improvements in DNA Extraction Procedures Using a Bronopol™ Tablet in Alpine Goat Milk. Ashley Newton. Langston University.
- 2:00 \*Validation of Multiplex Quantitative PCR Assay for Detection of Seven Major *Escherichia coli* Serogroups and Associated Virulence Genes in Goat Milk and Feces. Magnus W.T. Scott, Jr. Langston University.
- 2:15 \*Gene Expression in *Staphylococcus aureus* and Methicillin-Resistant *Staphylococcus aureus* Biofilms. Trevor Torgerson and Joel Gaikwad. Oral Roberts University.
- 2:30 \*The effect of calcium on the production of rhamnolipids in *Pseudomonas aeruginosa*. Mandy Truelock, Michelle King, and Mariana Patrauchan. Oklahoma State University.

Posters

- \*\*Proteomics Analysis of a *Staphylococcus aureus* Tea Tree Oil-Selected Small Colony Variant. Nathaniel J. Torres, Khadija A. Abdulhafid and John E. Gustafson. Oklahoma State University.
- \*Plant Pathogenic Diaporthe Species Infecting Melons in Oklahoma. Keshav Karki, C. Biles, M. Broge, A. Howard, and B. Bruton. East Central University.

\* Undergraduate \*\* Graduate

**SECTION I: ENGINEERING SCIENCES  
D-209**

**Moderator: Giang Xu  
University of Central Oklahoma**

- 1:30 \*Development of a New Automated System to Produce Electrospun Nanofiber. Maegen Forrer, Lohitha Wickramasinghe, Wendy Bevill, Michael Rankin, and Alaeddin Abuabed. University of Central Oklahoma.
- 1:45 \*Design of a Thermoacoustic Refrigerator. Cody Jencks, Jeremiah Pearce, Mark Kincher, Dustin Decker, and Drew Graff. University of Central Oklahoma.
- 2:00 \*\*Enhancement of strain energy of poly(methyl methacrylate) using polycaprolactone nanofiber mesh. Harsha Jamadagni and Morshed Khandaker. University of Central Oklahoma.
- 2:15 \*\*Cell Manipulation in Microfluidics using Dielectrophoresis. Nicholas Walker, Matthew Benton, and Mohammad Hossan. University of Central Oklahoma.
- 2:30 Biomechanics of Single Flagella. Gang Xu. University of Central Oklahoma.

Posters

- \*Vehicle Localization Using Resilient Networks and Infrastructure. Daniel Oluebubechukwu, Charmant Mushagalusa, and Floyd Day. University of Central Oklahoma.
- \*Self-Regulated Realistic Modeling and Optimization of a 2D-Functionally Graded Stem in a Cemented Femoral Hip Prosthesis.. Abdellah ait Moussa and Rohan Kumar Yadav. University of Central Oklahoma.

\* Undergraduate \*\* Graduate

**SECTION J: BIOCHEMISTRY AND BIOPHYSICS  
D-111**

**Moderator: Ning Wu  
Southeastern Oklahoma State University**

- 8:30 \*\*Bioinformatical analysis of corticosterone-induced neuronal cell neurotransmitter degradation. Qi Long, Teresa Golden, and Ning Wu. Southeastern Oklahoma State University.
- 8:45 \*\*Bioinformatical analysis of corticosterone-induced neuronal cell gene expression profile changes. Justin Shahan, Teresa Golden, and Ning Wu. Southeastern Oklahoma State University.
- 9:00 \*Characterizing the Interdomain Conformations of the cpSRP43 - cpSRP54 Complex through Ensemble FRET Measurements. Ronald Bercaw, Dustin Baucom, Feng Gao, and Colin D. Heyes. Oklahoma City University.
- 9:15 \*Identification of the Mechanisms of Ca<sup>2+</sup>- induced Polymyxin-B Resistance in a Human Pathogen *Pseudomonas aeruginosa*.. Tanner Onstine, Sharmily S. Khanam, Michael Franklin and Marianna A Patrauchan. Oklahoma State University.

Posters

- \*\*Unique Transposon Genome Rearrangements Identified in *Elizabethkingia anophelis* Outbreak Strains in the Midwest US.. Rita Flores, Nathaniel Torres, Jessica Matts, John Gustafson, Patricia Canaan and Peter Hoyt. Oklahoma State University.
- \*\*Effect of Salt (NaCl) and Salt Substitutions in Dough Rheology and Breadmaking. Zorba J. Hernández-Estrada and Patricia Rayas-Duarte. Oklahoma State University.
- \*Purification of Beta-galactosidase from *E. coli*. B. Acharya, J. Cox, B. Curry, B. Eccleston, K. Killam, S. King, N. Richardson, J. Yang, and W. Briscoe. Tulsa Community College.
- \*Phosphorylation Effects on Cancer Protein's DNA Binding. Carlee Luttrell, Jessica Matts, Dustin Steele, and Donald Ruhl. Oklahoma State University.

\* Undergraduate \*\* Graduate

**SECTION K: MICROSCOPY  
E-378**

**Moderator: Lisa Whitworth  
Oklahoma State University**

- 8:30 Microstructure and Texture Characterisation of Linear Friction Welded Titanium Alloys. Yina Guo<sup>1</sup>, YuLung Chiu<sup>2</sup>, Moataz M. Attallah<sup>2</sup>, Simon Bray<sup>3</sup>. <sup>1</sup>Materials & Surface Science Institute, University of Limerick, Ireland, <sup>2</sup>School of Metallurgy and Materials, University of Birmingham, Birmingham, B15 2TT, UK, <sup>3</sup>Rolls-Royce plc, Derby, DE24 8BJ, UK.
- 9:00 Probing the Molecular Organization of Cells and Organelles using Cryo-Electron Microscopy. Daniela Nicastro. UT Southwestern Medical Center.
- 10:00 Break and Voting on 2017 Ugly Bug Contest
- 10:25 \*\*Polyester or Epoxy: Assessing product efficacy in paleohistological methods. Christian Heck and Gwyneth Volkmann. Oklahoma State University Center for Health Sciences.
- 10:45 Survey of Polyethylene Oxide Polymer Electrolyte using Microscopic Methods, for Solid State Battery Applications. John Ostrander, Dale Teeters Ph.D., University of Tulsa Dept. of Chemistry and Biochemistry.
- 11:05 \*\*Tissue Clearing with PACT, Fluorescent Immunohistochemistry and 3-Dimensional Reconstruction for the Spatial Evaluation of Protein Interactions. Michael B. Anderson and Kenneth E. Miller. Oklahoma State University Center for Health Sciences.
- 11:25 \*\*Chloride and Sulfate Exchange in Short-Term, Low Temperature Brine + Jarosite Experiments. Kayla M. Miller (OU) Andrew S. Elwood Madden (OU), Charity M. Phillips-Lander (OU), Janice L. Bishop (SETI/NASA Ames), and Megan E. Elwood Madden (OU).

\*\* Timpano Award Contest

\* Undergraduate \*\* Graduate

**SECTION L: MATHEMATICS AND COMPUTER SCIENCE  
D-209**

**Moderator: Patrick Harrington  
Northeastern State University**

- 8:30 Optimization of Quantum Cellular Automata: Reinforcement Learning. Patrick Harrington. Northeastern State University.
- 8:45 Fast Algorithm for Determining if an Integer is a Highly Composite Number. Clay B. Carley III. .
- 9:00 Measure Theoretic Approach to Reynolds' Averaging. Nicholas Jacob. East Central University.
- 9:15 Alternating Advantage in Two Player Games. Andrew Wells. East Central University.
- 9:30 \*Hermite Polynomials. Maranda Robin Clymer. East Central University.
- 9:45 Break
- 10:00 \*Identification of time dependent control parameter through finite difference method in parabolic partial differential equation.. Melvin Lipka and Narayan Thapa. Cameron University.
- 10:15 \*On the Numerical Solution of the Advection-Reaction-Dispersion Model. Jashmon Rana, Gokul R Kadel, and Narayan Thapa. Cameron University.
- 10:30 \*Diffie-Hellman Key Exchange Protocol. Samundra Regmi. Cameron University.
- 10:45 \*Convergence of Iterative Methods Under Weak Conditions. Nirjal Shrestha and Ioannis Argyros. Cameron University.

Posters

\*Modeling Measles with Random Forcing. Amanda Kramer and Tracy McKibben. East Central University.

Adherence to Pediatric Guidelines for the Diagnosis and Management of Acute Otitis Media. Aaqil Shihab, Meredith Proctor, Krista S. Schumacher, Shrieraam Sathyanarayanan, and William D. Paiva. Talented and Gifted Magnet.

\*Groundwater: Impacted or not Impacted. Connor Cheek. University of Science and Arts of Oklahoma.

\*Binomial Transformations in the Complex Plane. Micah Godfrey. East Central University.

\* Undergraduate \*\* Graduate

**SECTION M: ENVIRONMENTAL SCIENCES****D-112****Moderator: Charles Crittell  
East Central University**

- 8:30 The Apache local fauna from a Pleistocene karstic filling in southwestern Oklahoma, with the first Oklahoma fossil record of Helodermatidae. Nicholas J. Czaplewski (Oklahoma Museum of Natural History) and Kent S. Smith (OSU-CHS). University of Oklahoma.
- 8:45 \*Uptake of arsenic by iron hydroxy carbonate (chukanovite): Implications for groundwater treatment using granular iron reactive barriers. Morgan Mackey (ECU) and Richard T. Wilkin (EPA, Ada). East Central University.
- 9:00 \*A Mathematical Model of Passive Flux Meter Performance. Chase Tillar. East Central University.

\* Undergraduate \*\* Graduate

**SECTION N: BIOMEDICAL SCIENCES****D-107****Moderator: Sapna Das-Bradoo  
Northeastern State University**

- 8:30 \*\*Validation Of Proteomic Hits From DNMT1 Pulldown Data. Hayley Fischer. Northeastern State University.
- 8:45 \*\*Transcriptomic Analysis in an Avian Model of Maternal Phenylketonuria. Jamie Watson and Nikki J Seagraves. University of Central Oklahoma.
- 9:00 \*\*Spatio-temporal variations in miRNA, mRNA and protein expression in peripheral nerve injury. Vadim Yerokhin and Kenneth Miller. Oklahoma State University Center for Health Sciences.
- 9:15 Glutaminase and aspartate aminotransferase levels in primary sensory neurons during rat models of arthritis and colitis. Kenneth E. Miller, Caleb J. Scheckel, Zijia Zhang, Subhas Das, Michael B. Anderson, Cheeho Kim, and Beverley Greenwood-Van Meerveld. Oklahoma State University Center for Health Sciences.
- 9:30 Nicotine self-administration remodels perineuronal nets in ventral tegmental area and orbitofrontal cortex in adult male rats. Vazquez-Sanroman, D. and Bardo M. T. Oklahoma State University.
- 9:45 \*Regulation of PDGF-induced phenotypic switching in vascular smooth muscle cells.. Lauren Bellcock, Elizabeth Bullen, Eric Howard, Dave Sherry, Jamie Watson, and Shannon Conley. Oklahoma Christian University.
- 10:00 Break
- 10:15 \*\*Mcm10: A Target for Possible Cancer Treatment. Casey Eddington, Brandy Fultz, Dawn Bender, and Sapna Das-Bradoo. Northeastern State University Broken Arrow.
- 10:30 \*Modulation of Angiomotin expression through CRISPR Endonuclease and Transcription Activators. Matthew Goelzer and William Ranahan. Oral Roberts University.
- 10:45 \*Clinical Implications of TRIM65 Amplification and Mutation. Landon Hester and Joe Zhao. Oklahoma Christian University.
- 11:00 \*CRISPR-Cas9 Mediated Gene Edit of Holocentric Binding Protein-2 in Caenorhabditis elegans. Jackson Higginbottom, Hadley LaMascus, and Landon Moore. Oklahoma Christian University.

\* Undergraduate \*\* Graduate

**SECTION N: BIOMEDICAL SCIENCES  
(cont.)**

- 1:30 \*12-HETrE Exerts Its Antithrombotic Effects Through The Prostacyclin Receptor. Zitha R. Isingizwe (OC), Benjamin E. Tourdot (Univ of Michigan), Reheman Adili (Univ of Michigan), Meral Abraham(Univ of Michigan), Theodore R. Holman(UCSC), and Michael Holins
- 1:45 \*Roads not taken: Gold nanoparticles illuminate cancer's occult secrets by unraveling new molecular targets via corona approach.. Ryan Jones, Nazir Hossen, and Priyabrata Mukherjee. Oklahoma Christian University.
- 2:00 \*First Line Chemotherapy Induces Stemness and Multidrug Resistance in Major Types of Cancer. Dusenge Shaida Kamali, Soumyajit Banerjee Mustafi, Anindya Dey, Shailendra Dwivedi, and Resham Bhattacharya. Oklahoma Christian University.
- 2:15 \*CRISPR-Cas9 Mediated Gene Edit of Holocentric Binding Protein-1 in *Caenorhabditis elegans*. Hadley G. LaMascus, Jackson Higginbottom, and Landon L. Moore. Oklahoma Christian University.
- 2:30 Break
- 2:45 \*Phenformin Inhibits Myofibroblast Phenotype in Dupuytren's Contracture Cells. Rachel McNamar. University of Central Oklahoma.
- 3:00 \*Positive Regulation of Yes-Associated Proteins (Yap) Nuclear Activity via Amot Expression. Julianna Sherman and William Ranahan. Oral Roberts University.
- 3:15 \*Effects of Chronic B-FNA in the Cell Signaling Pathway of Normal Human Astrocytes. Ote Staton, Daniel Buck, Kelly McCracken and Randall Davis. Oklahoma State University Center for Health Sciences.
- 3:30 \*Environmental Enrichment in the ISS Rodent Habitat Hardware System. Rhonda Weigand, Sophie Orr, Tanner Adams, and Yuri Griko. Redlands Community College.

\* Undergraduate \*\* Graduate

**SECTION N: BIOMEDICAL SCIENCES  
(cont.)**

Posters

- \*\*Evaluation of the Presence and Location of Glutamate Receptor Subunits in the Rat Cornea. Branden K. Carr and Kenneth E. Miller. Oklahoma State University Center for Health Sciences.
- \*\*Glial immunolabeling in female rats after short-term vs. long-term furosemide treatment. Sheri L Core and K. S. Curtis. Oklahoma State University Center for Health Sciences.
- \*\*Kill Curve Experiment Comparing Different Doses From Two Blasticidin Batches on 293-F Human Embryonic Kidney Cells. Hayley Fischer and Kathi McDowell. Northeastern State University.
- \*\*Determining the Expression of Nerve Growth factor in rat Antigen Induced Arthritis model.. Vikram Gujar and Kenneth E. Miller. Oklahoma State University Center for Health Sciences.
- \*\*The role of miR23b and let-7a in glutamatergic myenteric innervation in trinitro-benzene-sulphonic acid-induced colitis in rats.. Radhika Pande, Subhas Das, Zijia Zhang, Michael B. Anderson, Beverley Greenwood-Van Meerveld and Kenneth E. Miller.
- \*Human TH2 Cells Experience Decreased Levels of IL-5 and IL-13 When Treated with 4 $\mu$ 8c Inhibitor. Matthew Carlile, Kyeorda Kemp, Cody Poe, and Sallie Ruskoski. Northeastern State University Broken Arrow.
- \*HTLV-1 promoter complex Tax/pCREB interaction with mediator subunit MED15 via the "KIX-like" binding domain. Joshua Hardage, Morgan Mackey, and Alisha Howard. East Central University.
- \*Characterizing Cardiovascular Defects in an Avian Model of Maternal PKU. Kody Harvey, Mary Grace Thetford, Jordan Guffey, and Nikki J Seagraves. University of Central Oklahoma.
- \*CHO Cell Viability When Exposed To Ginkgo biloba. Mitchell Hotson, Nick Richardson, Fatima Abu-Saleh, Jacob Beckham, Cassie pickerel, Stephenie sandoval, Ana Platt, Michael Hilton, and Melissa Gates. Tulsa Community College.
- \*Characterizing Early Developmental Defects in an Avian Model of Maternal PKU. Austin McDonough, Morgan Massey, and Nikki J Seagraves. University of Central Oklahoma.
- \*Investigating DNA Polymerase Subunit Interactions In *Saccharomyces cerevisiae*. Tyler Noble, C. Eddington, and S. Das-Bradoo. Northeastern State University Broken Arrow.

\* Undergraduate \*\* Graduate

## SECTION N: BIOMEDICAL SCIENCES

(cont.)

### Posters

\*Analysis of Migration in Phenylalanine Treated Cells. Gabriel Rucci and Nikki J Seagraves. University of Central Oklahoma.

\*Preliminary Study: Applying Osteopathic Manipulative Techniques in Reducing Soft Tissue Abuse in Vocalists. Breanna Anderson (TU), Kent Smith (OSU-CHS), Leslie Ching (OSU-CHS), and Susan Goldman-Moore (TU). Oklahoma State University Center for Health S.

\*Expression and Purification of Nattokinase and Lumbrokinase. Sawyer Sparks and Kevin Yueju Wang. Northeastern State University.

## OKLAHOMA ACADEMY OF SCIENCE PRESIDENTS

1910	H. L. Lane, OU	1957	D. E. Howell, OAMC
1911	D. W. Othern, Okla. City	1958	G. J. Goodman, OU
1912	S. W. Reaves, OU	1959	E. Lucas, OU
1913	C. W. Shannon, OU	1960	P. E. Smith, OUMS
1914	No meeting	1961	E. M. Hodnett, OSU
1915	C. W. Shannon, OU	1962	H. G. Barclay, TU
1916	C. N. Gould, OU	1963	G. A. Moore, OSU
1917	L. C. Raiford, ISU	1964	A. D. Buck, NOJC
1918	No meeting	1965	J. E. Webster, OSU
1919	No meeting	1966	C. R. Williams, PU
1920	M. M. Wickham, Norman	1967	C. D. Riggs, OU
1921	A. F. Reiter, PU	1968	E. A. Reynolds, SWSC
1922	J. B. Thoburn, Okla. City	1969	L. V. Scott, OUHSC
1923	R. O. Whitenton, OAMC	1970	C. C. Carpenter, OU
1924	S. Weidman, OU	1971	P. Buck, TU
1925	(spring) C. E. Sanborn	1972	W. A. Carter, ECSU
1925	(fall) H. L. Dodge, OU	1973	C. J. Mankin, OU
1926	J. H. Could, OAMC	1974	N. N. Durham, OSU
1927	C. N. Gould, OU	1975	B. Shirley, TU
1928	O. M. Smith, OAMC	1976	G. W. Todd, OSU
1929	A. Richards, OU	1977	D. E. Kizer, Noble Fdn
1930	L. Long, Okla. City	1978	G. Odell, OSU
1931	A. O. Weese, OU	1979	R. Couch, ORU
1932	H. Patterson, OAMC	1980	G. Wolgamott, SWOSU
1933	J. E. Knowles, PU	1981	E. Rice, OU
1934	F. G. Brooks, OCU	1982	E. Grigsby, NSU
1935	C. E. Decker, OU	1983	J. Sokatch, OUHSC
1936	H. J. Harper, OAMC	1984	M. Whitmore, OU
1937	B. D. Barclay, TU	1985	J. Black, OBU
1938	C. M. Perry, OU	1986	J. Wilhm, OSU
1939	H. D. Chase, TU	1987	M. K. Patterson, Noble Fdn
1940	G. L. Cross, OU	1988	M. P. Carpenter, OU
1941	R. W. Jones, OAMC	1989	K. E. Conway, OSU
1942	H. I. Featherly, OAMC	1991	J. K. McPherson, OSU
1943	O. F. Evans, OU	1993	J. R. Estes, OU
1944	V. G. Heller, OAMC	1994	J. D. Tyler, CU
1945	J. R. Nielsen, OU	1996	C. Taylor, SEOSU
1946	O. C. Dermer, OAMC	1998	R. J. Tyrll, OSU
1947	J. T. Self, OU	2000	D. Bass, UCO
1948	L. S. McLeod, TU	2002	C. Clifford, NSU
1949	J. C. Shirley, PU	2004	S. Young, SNU
1950	H. Taylor, OCU	2006	S. Barber, OCU
1951	H. W. Larsh, OU	2008	U. Melcher, OSU
1952	V. B. Monnett, OAMC	2010	K. R. Hobson, OU
1953	S. P. Massie, LU	2012	C. Clifford, NSU
1954	A. N. Murray, TU	2014	S. Rice, SEOSU
1955	R. E. Olson, OU	2016	T. Conley, CU
1956	A. M. Stebler, OAMC		

