

OKLAHOMA ACADEMY OF SCIENCE PRESIDENTS

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

104th ANNUAL TECHNICAL MEETING OKLAHOMA ACADEMY OF SCIENCE

OKLAHOMA CITY UNIVERSITY

TABLE OF CONTENTS

OAS Statement of Purpose and Sponsored Activities	Front Cover
Program Summary	2
General Information	4
Parking	
Registration	
Membership Dues	
Guidelines for Submitting Manuscripts to <i>POAS</i>	
Assistance	
Refreshments	
Special Tables	
Special Thanks	
Future Meetings	
SYMPOSIUM – Effects of Climate Change: Past, Present, Future	6
Sectional Meeting Programs	
A-Biological Sciences - Botany	8
A-Biological Sciences - Zoology	9
B-Geology	11
C-Physical Sciences	12
D-Social Sciences	13
E-Science Communication and Education	14
F-Geography	15
G-Applied Ecology and Conservation	16
H-Microbiology	17
I-Engineering Sciences	19
J-Biochemistry and Biophysics	20
K-Microscopy	21
L-Mathematics	23
M-Environmental Sciences	24
N-Biomedical Sciences	25
Luncheon Speaker	27
OAS Presidents Past and Present	28
Map of OCU	Inside Back Cover

**104th ANNUAL TECHNICAL MEETING
OKLAHOMA ACADEMY OF SCIENCE
OKLAHOMA CITY UNIVERSITY**

PROGRAM SUMMARY

Thursday, 12 November 2015

6:00 p.m. Executive Council Dinner/Meeting Wilson House
2500 N. Blackwelder Ave.

Friday, 13 November 2015

7:30 a.m. Registration for Technical Meeting lower level
- 10:00 a.m. Sarkeys Center for Science and Math (SSM)

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

Section A	Biological Sciences – Botany	SSM 111
Section A	Biological Sciences – Zoology	SSM 102
Section B	Geology	SSM 204
Section C	Physical Sciences	SSM 108
Section D	Social Sciences	SSM 205
Section E	Science Communication and Education	SSM 205
Section F	Geography	SSM 114
Section G	Applied Ecology and Conservation	SSM 112
Section H	Microbiology	SSM 103
Section I	Engineering Sciences	SSM 111
Section J	Biochemistry and Biophysics	SSM 108
Section K	Microscopy	SSM 109
Section L	Mathematics	SSM 104
Section M	Environmental Sciences	SSM 111
Section N	Biomedical Sciences	SSM 110

SYMPOSIUM – Effects of Climate Change SSM 100

Special Tables	SSM Atrium
Photographer.....	SSM Student Lounge
Refreshments	SSM Student Lounge

Luncheon Speaker

Dr. Ingo Schlupp

Ingo Schlupp received his doctorate from the University of Hamburg in 1995 and joined the University of Oklahoma in 2005. He is currently a Presidential Professor of Biology and Associate Dean for Research in the College of Arts & Sciences, after having served several years as the Assistant Chair of Biology. He has published more than 140 peer reviewed papers, in journals including *Nature*, *Science*, *PNAS*, *Current Biology*, *Biology Letters*, and *Ecology Letters*.

Dr. Schlupp has received a prestigious Friedrich Wilhelm Bessel Research Award by the Alexander von Humboldt Foundation and is currently a National Academies Education Fellow in the Life Sciences. He is part of a team in the Department of Biology that is developing a new, research-based course for undergraduates called Cornerstone.

Dr. Schlupp's lab addresses questions in evolutionary biology, with a special focus on animal behavior. Among other thing, his lab is interested in how sexual reproduction is maintained, tackling the problem at several levels—molecular biology, animal behavior, and ecology. Consequently, they use a broad array of research methods. Their study species are mainly livebearing fishes.

Taken from websites:

<http://www.ou.edu/schlupp>

http://www.ou.edu/schlupp/pdf/Associate_Dean_Schlupp.pdf

SECTION N: BIOMEDICAL SCIENCES
(cont.)

Posters

***Avian Model of Maternal Phenylketonuria (MPKU)**. O. Ariwodo, J. Guffey, O. Ware, M. Brandao, N.J. Seagraves. University of Central Oklahoma.

***Effect of Beta-FNA on TAK-1 Phosphorylation in Normal Human Astrocytes**. E. Bates, K. McCracken, D.J. Buck, R.L. Davis. Oklahoma State University Center for Health Sciences.

***Purification of Cross-Linked Protein-Protein Complexes as a Means to Map Interactions in DNA Damage Response Pathways**. J. Brown, B. Fultz, S. Das-Bradoo. Northeastern State University

***Immunohistochemical Identification and Characterization of Neuronal Primary Cilia in Rats**. J. Cox, G. Cook, N. Wilson. Tulsa Community College.

***Producing Recombinant Proteins of EMCV for Assays**. A. Javed, B.J. Reddig, E.L. Blewett. Oklahoma State University Medical Center.

***Profiling miRNA Expression Patterns from Exosomes Isolated from Urine of Endometrial Cancer Patients**. E. Loucks, A. Srivastava, R. Ruskinn, K. Moxley, D. Dhanasekaran, S. McMeekin, R. Ramesh. East Central University.

NSAIDs Elicit Differential Expression of Intracellular and Extracellular Proteins of *Chaetomium globosum. T. Rowsey, K.C. Ashmita, S. Shrestha, C. Biles, T.W. Cluck. East Central University.

*Undergraduate Competition

**Graduate Competition

PROGRAM SUMMARY
(Cont.)

11:00 a.m. Section Meetings Presentation Rooms
Election of Section Vice-Chair.
[Provide this information to Dr. David Bass at the check-in desk before leaving.]

11:30 a.m. Academy Business Meeting SSM 100
All OAS members are encouraged to attend.
Visitors are welcome.

12:00 p.m. Academy Luncheon & Speaker Great Hall
Tom and Brenda McDaniel University Center
(Admission by ticket only)

Dr. Ingo Schlupp
Presidential Professor of Biology
Associate Dean for Research
College of Arts & Sciences
University of Oklahoma

"The Amazing Social Life of Freshwater Fishes"

1:30 p.m. Poster Presentations SSM Atrium
- 3:00 p.m. (Setup during lunch time)

4:30 p.m. Science Reception Belle Isle Restaurant & Brewery
- 6:00 p.m. 1900 Northwest Expressway, OKC
(Inside 50 Penn Place-lower level)

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.**

Parking: West side of campus, on Kentucky Street north of 23rd Street.

On-site Registration Fees:

- Member - \$20.00
- Non-member - \$25.00
- Student presenter - \$20.00
- Student non-presenter - \$10.00
- Luncheon tickets (if available) - \$18.00

2015 and 2016 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 <http://biosurvey.ou.edu/oas/publications.html>. Abstract publication fee is \$35. *POAS* editor is Dr. Mostafa S. Elshahed, 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.

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 break will be in the Student Lounge of the Sarkeys Center for Science and Mathematics (SSM).

SECTION N: BIOMEDICAL SCIENCES SSM 110

Moderator: Eric D. Phelps
Oklahoma Christian University

- 8:45 ***Conservation of a Partial Gene Duplication of the Top-2 Like Protein, cin-4, in *Caenorhabditis elegans*.** L. Bellcock, J. Miller, L. Moore. Oklahoma Christian University.
- 9:00 ***Interleukin-6 Regulation of Murine Macrophage Polarization.** R. Jones^{1,2}, L. Luckett-Chastain², K. Calhoun², T. Schartz², R. Gallucci². ¹Oklahoma Christian University, ²University of Oklahoma Health Science Center.
- 9:15 ***The Effect Of N-Acetylcysteine on the Migration of Myofibroblasts.** M. Vaughan, M. D. Nichols. University of Central Oklahoma
- 9:30 ***Role of IGF-1 and IGF-2 in Corneal Diabetes.** T. Rowsey, S. Priyadarsini, D. Karamichos. East Central University.
- 9:45 Break
- 10:00 ***An Amot Requirement for ILB Production in a Tumorigenic Fibroblastic Cell Line.** C. Snow. Oral Roberts University.
- 10:15 ***The Effects of Curcumin on HT29 Colon Cancer Cells.** J. Oduro. Oral Roberts University.
- 10:30 ****The Effects of Staphylococcus aureus Biofilm Conditioned Medium on Migration of Fibroblasts.** P. Kshetri, M. B. Vaughan. University of Central Oklahoma.
- 10:45 ****Characterization of Bioactive Compounds Obtained from Bacteria in the Oklahoma Salt Plains.** O.O. Oyewole, A. Jorski, R.J. Sheaff. University of Tulsa.
- 11:00 **Section N Business Meeting**

*Undergraduate Competition

**Graduate Competition

**SECTION M: ENVIRONMENTAL SCIENCES
SSM 111**

**Moderator: Charles Crittell
East Central University**

- 9:15 ***Using Geochemical Parameters and Elevation to Link Karst Conduit Flow to Springs in the Arbuckle Mountains, South-Central Oklahoma.** L. Thompson. East Central University.
- 9:30 **Influence of Climate on Radial Growth of Blackjack Oak (*Quercus marilandica* Munchh.) in the Central Cross Timbers, Oklahoma.** J. Cheek, C. King. University of Central Oklahoma .
- 11:00 **Section M Business Meeting**

Posters

Habitat and Environmental Variability Due to Watercress Growth in Oklahoma Springs. K. L. Brown, E. A. Bergey. University of Oklahoma.

***Assessment of Water Quality in Lakes and Streams Located in Southwest Oklahoma.** V. Meador, S. Morgan, R. Paris, M. Ulloa, S. Wilson, T. Conley, C. Guthridge. Cameron University.

**SPECIAL TABLES
(SSM Atrium)**

- Louis Stokes Alliances for Minority Participation Program (LSAMP)
Oklahoma IDeA Network of Biomedical Research Excellence (OK-INBRE)
Council on Undergraduate Research (CUR)
Oklahoma PTEC
Oklahoma Blue Thumb
Oklahomans for Excellence in Science Education (OESE)
Photography by Ricky D. Jones (SSM Student Lounge)

SPECIAL THANKS

- OCU President, Dr. Robert Henry, for his continued support of the sciences
Local Planning Committee: Laurie Kauffman, Greg Mullen, Beth Landon, Tony Stancampiano, Adam Ryburn
Belle Isle Restaurant and Brewery
Sodexo

UPCOMING MEETINGS

- 2016 Spring Field Meeting, April 8-10, Beavers Bend State Park
2016 Fall Field Meeting, tba
2016 Annual Technical Meeting, November 4, OSU Center for Health Sciences, Tulsa,

*Undergraduate Competition
**Graduate Competition

SYMPOSIUM
SSM 100

Effects of Climate Change: Past, Present, Future

- 8:25 Opening Remarks. Oklahoma City University.
- 8:30 **Climate Change in Comparison to Daily Weather Trends and the Implications to Agriculture.** Diane Cooper. WxIntegrations.
- 9:00 **Global Climate Change and Its Implications for Oklahoma Water.** Gary McManus. Oklahoma Climatological Survey.
- 9:30 **Drought to Flood: The Impact of Water.** Derek Smithee. Oklahoma Water Resources Board.
- 10:00 **Social and Cultural Implications of Climate Variability on Tribal Communities.** Scott Ketchum. University of Oklahoma.
- 10:30 **The Effect of Environment Change on Human Dispersal from Africa: A View from the Pleistocene.** Miriam Belmaker. University of Tulsa.
- 11:00 **Covering Climate Change for Non-Believers.** Logan Layden. KGOU-NPR.

SECTION L: MATHEMATICS AND COMPUTER SCIENCE
SSM 104

Moderator: Patrick Harrington
Northeastern State University

- 8:30 **Security Metrics and Data Loss.** P. Harrington. Northeastern State University.
- 8:45 **Data Visualization of Experimental Data: A Layered Approach.** C Carley. East Central University.
- 9:00 ***Comparison of Numerical Solutions of Black-Scholes Option Pricing Model.** A. Joshi, G. Kadel, N. Thapa. Cameron University.
- 9:15 ***Fair Division of a Shareable Good.** N. Wimer. Cameron University.
- 9:30 Break
- 9:45 ***Comparison of Numerical Solutions of Nonlinear Schrodinger Equation.** J. P. King. Cameron University.
- 10:00 ***Travelling Waves Solutions of Infectious Diseases Model.** J. Yoon. Cameron University.
- 10:15 ***Maximizing Guaranteed Value in a Fair Division of a Cake Under Piecewise-Linear Valuations.** B. Payne. Cameron University.
- 10:30 ***Determining the Volume of a Surface Defined by Tomographic Scattering Points.** D. Lim, R. Bennett, J. Danser. University of Science and Arts of Oklahoma.
- 11:00 **Section L Business Meeting**

*Undergraduate Competition

**Graduate Competition

**SECTION K: MICROSCOPY
(cont.)**

- 10:45 **Immunolocalization of Ferulic Acid Ester Linked Arabinoxylans in *Oryza sativa* Throughout Pre-Emergent Lateral Root Primordia Development.** David Thomas, Timothy Pegg, Laura Bartley. University of Oklahoma.
- 11:00 **Focused Ion Beam to Mill Organic-Walled Fossils at the Micro- and Nanoscale.** Nathan C. Sheely, P.R Larson, M.B Johnson, R.A Lupia. University of Oklahoma.
- 11:15 **Characterization of High-Density Arrays of Self-Assembled InAs/GaAs_{1-x}Sb_x Quantum Dots.** Cédric Corrège, P.R. Larson, M.C. Debnath, M.B. Santos, M.B. Johnson. University of Oklahoma.
- 11:30 **Section K Business Meeting**

**SYMPOSIUM
(cont.)**

- 1:30 **Detecting Climate Signals in Urban Ecosystems.** Heather McCarthy. University of Oklahoma.
- 2:00 **Cooperative Wildlife Conservation Under Climate Change: Planning for an Uncertain Future.** Nicole Athearn. USFWS-Great Plains Landscape Conservation Cooperative.
- 2:30 **Climate Change and Emerging Parasitic Disease.** Christopher Dunn. University of Central Oklahoma.
- 2:45 **Climate Change and Emerging Parasitic Disease.** Chris Butler. University of Central Oklahoma.
- 3:00 **Climate Change and Emerging Parasitic Disease.** James Creecy. University of Central Oklahoma.
- 3:15 **Climate Change and Emerging Parasitic Disease.** Wayne Lord. University of Central Oklahoma.
- 3:30 **Earlier Spring Budburst in Oklahoma Trees 2006–2015: Evidence of a Warming Climate?** Stan Rice. Southeastern Oklahoma State University.

*Undergraduate Competition

**Graduate Competition

SECTION A: BIOLOGICAL SCIENCES – BOTANY
SSM 205

Moderator: Constance Murray
Tulsa Community College

- 9:45 ***Differential Gene Expression in Water Oak (*Quercus nigra*) and Post Oak (*Q. stellata*): Possible Relation to Drought.** J. Shahan, L. Burns, N. Wu, S. Rice. Southeastern Oklahoma State University.
- 10:00 ***Immunolocalization of Ferulic Acid Ester Linked to Arabinoxylan in *Oryza sativa* Throughout Pre-Emergent Lateral Root Primordia Development.** D. Thomas, T. Pegg, L. Bartley. University of Oklahoma.
- 10:15 ****Developmental Significance of Pectic Polysaccharide Interactions and Modification During Lateral Root Emergence in *Oryza sativa*.** T. Pegg, L. Bartley. University of Oklahoma.
- 10:30 **A New Land Cover Map for Oklahoma.** D. Hough. Oklahoma Biological Survey.
- 10:45 **Flora of Oklahoma Annual Meeting.** A. Ryburn, editor.
- 11:00 **Section A Business Meeting** SSM 102
(combined with Zoology)

*Undergraduate Competition
**Graduate Competition

SECTION K: MICROSCOPY
SSM 109

Moderator: Scott Russell
University of Oklahoma

- 8:30 **Pectic Polysaccharide Cell Wall Compositional Alterations During Lateral Root Emergence in *Oryza sativa*.** Timothy Pegg, Laura Bartley. University of Oklahoma.
- 8:45 **Crystalline Defect Characterization Using Field-Emission Scanning Electron Microscopy.** Joseph N. Tessmer, P.R. Larson, J.C. Keay, E.S. Sanchez, M.B. Johnson. University of Oklahoma.
- 9:00 **The Future of TEM and Why We Must Remember the Past.** C. Barry Carter, University of Connecticut.
- 9:45 Break
- 10:00 **Characterization and Failure Analysis of Interband Cascade (IC) Structures and Devices Using a Zeiss Neon 40 Cross-Beam Microscope.** S.M. Shazzad, S. Rassel, H. Ye, J.C. Keay, L. Li, H. Lotfi, R.Q. Yang, M.B. Santos, P.R. Larson, M.B. Johnson. University of Oklahoma.
- 10:15 **Three-Dimensional Imaging and Quantitative Analysis of Dispersion and Mechanical Failure in Filled Nanocomposites.** Benjamin E. Smith, Hessam Yazdani, Kianoosh Hatami. University of Oklahoma.
- 10:30 **Synthesis of Hydrophobic Carbon Nanomaterials on Stainless Steel Substrates in a Diffusion Biodiesel Flame.** Ethan Murphy, June Hua, Steve Zhang, Jesse Yue, Wilson Merchan-Merchan. University of Oklahoma.

*Undergraduate Competition
**Graduate Competition

**SECTION J: BIOCHEMISTRY AND BIOPHYSICS
SSM 108**

**Moderator: Ulrich Melcher
Oklahoma State University**

- 8:30 ***Studies of Drug Binding with Alpha1-Acid Glycoprotein by Using On-Line Immunoextraction and High Performance Affinity Chromatography.** Zitha R. Isingizwe, Cong Bi, Ryan Matsuda, David S. Hage. Oklahoma Christian University.
- 8:45 ***ERA Rabies Virus Glycoprotein: Gene Assembly, Expression, and Protein Purification.** J. Dilley¹, L. Garman¹, K. Smith².
¹Oklahoma Christian University, ²University of Oklahoma Health Science Center.
- 9:00 ***MAPK Pathway Involved in Corticosterone-Induced PC12 Cell Viability and Neurite Disorders.** Cassaundra Braaten, Teresa Golden, Ning Wu. Southeastern Oklahoma State University.
- 9:15 ***Investigating a Novel Technology for Laundry in Space.** Morgan Mackey, Corey A. Theriot, Cherie M. Oubre, Billy G. Smith. East Central University.
- 9:30 Break
- 9:45 ****Protein Structure Analysis of SKA Complex—an Important Molecular Component Involved in Major Depressive Disorder.** Stephen Bastible, Teresa Golden, Ning Wu. Southeastern Oklahoma State University.
- 10:00 ****Novel Regulation of Tumor Suppressor P27kip1 by Transglutaminase.** Lei Zhang, Robert J. Sheaff. University of Tulsa.
- 11:00 **Section J Business Meeting**

*Undergraduate Competition
**Graduate Competition

**SECTION A: BIOLOGICAL SCIENCES – ZOOLOGY
SSM 102**

**Moderator: Michael Shaughnessy
Northeastern State University**

- 8:30 ***Effects of Habitat Variables on Home Range Size of Scissor-tailed Flycatchers.** J. Stokes, J. Roy, D. Roeder, M. Husak. Cameron University.
- 8:45 ***Differences in Activity and Play in Captive Orangutans: Implications for Conservation and Captive Welfare.** E. McCoy, L. Kauffman. Oklahoma City University.
- 9:00 ***Deletion of Cin-4 Using Gene Editing in *C.elegans*.** J. Miller, L. Bellcock, L. Moore. Oklahoma Christian University.
- 9:15 **Cutaneous Water Loss and Skin Resistance in Response to Temperature Variation.** M. Van Sant, C. Oufiero. Cameron University.
- 9:30 Break
- 9:45 ****Impact of Social Structure on Pair Bonding in Avian Species.** J. Agan, M. Naylor, A. Love. Oklahoma State University.
- 10:00 ****Macroinvertebrate Community Structure and Physicochemical Conditions of a Southeastern Oklahoma Bog.** K. Tedford, D. Bass. University of Central Oklahoma.
- 10:15 ****Potential Hormonal Trigger for Color Change in Juvenile Male *Crotaphytus collaris*.** JM Wiggins, MB Lovern, JL Grindstaff, SF Fox. Oklahoma State University.
- 10:30 ****Ontogeny and Life History of a Large Lamniform Shark from the Lower Cretaceous of North America.** J. Cohen, J. Frederickson, J. Berry. University of Oklahoma.
- 10:45 **Elasmosaur Remains from the Upper Cretaceous of South-Central Oklahoma.** J. Perry, W. May. Sam Noble Oklahoma Museum of Natural History.

*Undergraduate Competition
**Graduate Competition

SECTION A: BIOLOGICAL SCIENCES - ZOOLOGY
(cont.)

11:00 Section A Business Meeting SSM 102
(combined with Botany)

Posters

***Novice Taxonomists Assess Biodiversity in Hyperdiverse Arthropods Using DNA Barcoding.** B. Acharya, J. Bleichner, J. Cox, B. Curry, S.A. DeLeon, K. Killam, S.B.King, T. Noble, S. Rice, J. Yang, D. Spencer. Tulsa Community College.

***Novice Taxonomists Assess Biodiversity in Hyperdiverse Arthropods Using DNA Barcoding.** B. Acharya, J. Bleichner, J. Cox, B. Curry, S.A. DeLeon, K. Killam, S.B.King, T. Noble, S. Rice, J. Yang, D. Spencer. Tulsa Community College.

***Novice Taxonomists Assess Biodiversity in Hyperdiverse Arthropods Using DNA Barcoding.** B. Acharya, J. Bleichner, J. Cox, B. Curry, S.A. DeLeon, K. Killam, S.B.King, T. Noble, S. Rice, J. Yang, D. Spencer. Tulsa Community College.

***Wing Damage of *Myotis velifer* Before WNS in Western Oklahoma.** J. Farriester, J. Shaw. University of Science and Arts of Oklahoma.

****Acute Thermal Stress Tolerance in Resurrected Clones of *Daphnia pulicaria* from South Center Lake, Minnesota.** A. Yousey. University of Oklahoma.

*Undergraduate Competition
**Graduate Competition

SECTION I: ENGINEERING SCIENCES
SSM 111

Moderator: Mohammad R. Hassan
University of Central Oklahoma

8:30 ***Induced Wound Reveals Mechanical Tension in Fibroblast-Populated Collagen Lattices.** Ting-Wei Law, Lauren Tinnin, Melville Vaughan, Gang Xu. University of Central Oklahoma.

8:45 ****Effect of Fiber Architecture on the Fracture Strength of Implant/Bio-Material Interfaces.** Shahram Riahinezhad, Morshed Khandaker. University of Central Oklahoma.

9:00 ****Numerical Study of the Relationship Between Mixing Index and Entropy Generation in Micro-Mixers.** Zhaotong Meng, Evan Lemley, Mohammad R Hossan. University of Central Oklahoma.

11:00 Section I Business Meeting

Posters

****ITP Separation and Concentration of Proteins in PDMS-Glass Microchip: Simulation and Experiment.** Loren Tucker Teigland, Steven Karpowicz, Mohammad R Hossan. University of Central Oklahoma.

***Dielectrophoretic Separation of Particles and Cells in a Microfluidic Device.** Abigail Magee, Travis Locke, Matthew Benton, Nicholas Walker, Melville Vaughan, Mohammad R Hossan. University of Central Oklahoma.

***Minimizing Stress Shielding in Femoral Hip Implants Through Mathematical Modeling and Experimental Verification.** Rohan Yadav, Justin Fischer, Tyler Grubb, Phuong Huyen, Abdellah Air moussa. University of Central Oklahoma.

***Improving the Hydraulic Efficiency of Centrifugal Pumps via Numerical Optimization and Experimental Verification.** Lin Yunhao, Abdellah Air moussa. University of Central Oklahoma.

Four-Dimensional Cone-Beam CT Algorithm by Extraction of Physical and Motion Parameter of Mobile Targets Retrospective to Image Reconstruction with Motion Modeling. Nesreen Alsou, Salahuddin Ahmad, Imad Ali. University of Central Oklahoma, University of Oklahoma Health Sciences Center.

*Undergraduate Competition
**Graduate Competition

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

- 10:45 ****Isolation Strategies of Anaerobic Fungi from Different Foregut Fermenters.** Radwa A. Hanafy, Mostafa S .Elshahed, Noha Youssef. Oklahoma State University.
- 11:00 **Section H Business Meeting**
- 1:30 ****The Role of EFHP in Calcium Signaling and Virulence in *Pseudomonas aeruginosa*.** Biraj Kayastha, Marianna Patrauchan. Oklahoma State University.
- 1:45 ****CarP, a Putative Beta Propeller Protein, Plays Role in *Pseudomonas aeruginosa* Response to Calcium.** Michelle King, Manita Guragain, Kerry Williamson, Ailyn C Perez-Osorio, Tatsuya Akyama, Sharmily S Khanam, Michael J. Franklin, Marianna A. Patrauchan. Oklahoma State University.
- 2:00 ****Regulation of the Phosphodiesterase RegA in *Dictyostelium discoideum* During cAMP Signaling.** Nick Kuburich, Nirakar Adhikari, Jeff Hadwiger. Oklahoma State University.
- 2:15 ****'In-Silico' Chemotaxonomy: A New Tool for Microbial Systematics?** Nisha B. Patel, Krithivasan Sankaranarayanan, Cecil M. Lewis Jr., Paul A. Lawson. University of Oklahoma.
- 2:30 ****Talin Gene Expression for the Anaerobic Fungi *Orpinomyces C1A*.** Shelby Rice, Nicole Elledge, Noha Youssef. Oklahoma State University.

Posters

Global Patterns of Pectin Degradation Revealed Through Metagenomic Mining. Ali S. Abdelaal, Radwa Hanafy, Ibrahim Farag, Kristina Baker, Noha Youssef, Mostafa Elshahed. Agricultural Genetic Engineering Research Institute (AGERI)/ Oklahoma State University.

What CHO Cells Say About Supplements, Cellucor C4 and Astaxanthin. Bipina Acharya, Ciara Boatright, Jordan Cox, Brandon Curry, Brian Eccleston, Kameron Killam, Blake King, Samantha Rice, Jennifer Yang, Dusti Sloan. Tulsa Community College.

*Undergraduate Competition
**Graduate Competition

**SECTION B: GEOLOGY
SSM 204**

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

11:00 **Section B Business Meeting**

*Undergraduate Competition
**Graduate Competition

SECTION C: PHYSICAL SCIENCES
SSM 108

Moderator: Karen Williams
East Central University

- 10:15 *Gamma Ray Burst – Supernova Explosion 150518a. E. Apala. East Central University.
- 10:30 Ultrasound Attenuation Study in a Solid Using the Slope Method. K. Williams. East Central University.
- 10:45 Some Little Known Relativistic Invariants. W. J. Wilson. University of Central Oklahoma.
- 11:00 Section C Business Meeting

Posters

*Microwave Synthesis of Phenyl Salicylate and Phenyl Salicylate Derivatives. S. Rupakhati. Cameron University.

*A Computational Study of Monochlorinated Products in Radical Halogenations. M. Clark, C. Crittall. East Central University.

Transition State Study: The Diels-Alder Reaction. D. McInnes, K. DeNike. East Central University.

*Journey Through the Center of the Earth. C. Cheek. University of Science and Arts of Oklahoma.

*The USAO Observatory and Celestial Bodies. D.T. Lim. University of Science and Arts of Oklahoma.

*Undergraduate Competition

**Graduate Competition

SECTION H: MICROBIOLOGY
SSM 103

Moderator: Tahzeeba Frisby
Cameron University

- 8:30 *Flooding Optimization for the Anaerobic Fungi *Orpinomyces* C1A. Nicole Elledge, Shelby Rice, Noha Youssef. Oklahoma State University.
- 8:45 *The Effect of Calcium on Planktonic and Biofilm Growth of *Pseudomonas aeruginosa* Cystic Fibrosis Clinical Isolates. Treyon Grant. Oklahoma State University.
- 9:00 *Characterization of Methanogen NB278 Isolated from Cow Rumen. Sauda Niyigena, Nicole Buan, Sean Carr. Oklahoma Christian University.
- 9:15 *The Effect of Calcium on the Production of Virulence Factor, Rhamnolipid, in a Human Pathogen *Pseudomonas aeruginosa*. Tyler S. Pound, Michelle M. King, Marianna A. Patrauchan. Oklahoma State University.
- 9:30 Break
- 9:45 *Purification of EF-Hand Protein, EfhP, in Human Pathogen *Pseudomonas aeruginosa*. Rendi Rogers. Oklahoma State University.
- 10:00 *The Effect of Environmental Factors on Swarming Motility in a Human Pathogen *Pseudomonas aeruginosa*. Breeanna Russ, Michelle King, Marianna Patrauchan. Oklahoma State University.
- 10:15 **Mutation in D-motif of *Dictyostelium discoideum* Phosphodiesterase, RegA, Leads to Developmental Phenotype Defect. Nirakar Adhikari, Nick Kuburich, Jeff Hadwiger. Oklahoma State University.
- 10:30 **The Potential Metabolic and Adaptation Strategies of the Latescibacterial Communities Inhabiting Freshwater Habitats. Ibrahim F Farag, Noha Youssef, Mostafa S. Elshahed. Oklahoma State University.

*Undergraduate Competition

**Graduate Competition

**SECTION G: APPLIED ECOLOGY & CONSERVATION
SSM 211**

**Section Chair: Erik Terdal
Northeastern State University**

11:00 **Section G Business Meeting**

**SECTION D: SOCIAL SCIENCES
SSM 205**

**Section Chair: Nora Gayzor
University of Central Oklahoma**

- 8:30 ****How Does Motivation Effect Adults with ADHD and ADHD Symptoms?** W. Sims, T. Jeyaraj-Powell. University of Central Oklahoma.
- 8:45 ****The Mirror Neuron System, Pain, and Empathy.** J. Durham, R. Mather. University of Central Oklahoma.
- 9:00 ***Children's Vulnerability to Homicide, Abduction, and Infanticide Correlates with the Seasons.** H. Sherwood, R. Mather. University of Central Oklahoma.
- 9:15 ***Delete Browsing Histories Regularly: Porn Variety and Aging.** J. Scott, N. Gayzor, A. Everson, A. Limke. University of Central Oklahoma.
- 11:00 **Section D Business Meeting**

Posters

- *An Evaluation of the Efficacy of a Community-Based Childhood Sexual Abuse Prevention Program.** N. Guard, J. Kissamore. University of Oklahoma-Tulsa.
- *Development and Assessment of a College Preparatory Session for Hmong Students.** J. Chang, J. Kisamore. University of Oklahoma-Tulsa.
- *Factors Associated with Long-Term Volunteer Commitment.** D. Tuttle, J. Kisamore, R. Terry. University of Oklahoma-Tulsa.

*Undergraduate Competition
**Graduate Competition

*Undergraduate Competition
**Graduate Competition

**SECTION E: SCIENCE COMMUNICATION & EDUCATION
SSM 111**

**Moderator: Danita Hundley
East Central University**

- 9:45 **Caring for an Urban Stream.** Karen Chapman. Friends of Bishop Creek.
- 10:00 **Climate Change Education in Oklahoma: Challenges and Possibilities.** Nicole Colston. Oklahoma State University.
- 10:15 ***Fostering Appreciation for Science and Engineering Among Religious Communities in Oklahoma.** Alex Mills, Emily Dzurilla, Dominic Halsmer. Oral Roberts University
- 10:30 **The Biggest Story Ever Told: Lee Smolin's Theory of the Natural Selection of the Universe.** Stanley Rice. Southeastern Oklahoma State University.
- 11:00 **Section E Business Meeting**

*Undergraduate Competition
**Graduate Competition

**SECTION F: GEOGRAPHY
SSM 114**

**Moderator: Gregory Plumb
East Central University**

- 8:30 **Multi-Scale Custom Map Projections for Oklahoma.** Gregory Plumb. East Central University.
- 8:45 **The Fenced Landscape of the Choctaw Nation: HGIS and Historical Resource Management.** Brad Watkins. University of Central Oklahoma.
- 9:00 **Development of an Interactive On-Line GIS Map of a 1995 Oklahoma Academy of Science Geology Field Trip in Northeast Oklahoma.** Jodie M. Burns. Northwest Arkansas Community College.
- 9:15 Break

Illustrated Poster Presentations

- 9:30 **Updating ECU Campus Web Maps and its Integration with the ECU Campus Directory.** Jeffrey Hickman. East Central University.
- 9:40 **GIS Analysis of Sidewalk Compliance for Ada, Oklahoma.** Samantha Echaury. East Central University.
- 9:50 **Cultural and Economic Tourism: Oklahoma City's Bricktown Canal.** Maxton Harris, Mila Wiczorek, Brad Watkins. University of Central Oklahoma.
- 10:00 **Meter Connectivity and Structure Identification for Petroleum Applications.** Jacob Baca. East Central University.
- 10:10 **Historical Mapping and Digitizing Chickasaw and Choctaw Allotted Lands.** Raul Negron. East Central University .
- 11:00 **Section F Business Meeting**

*Undergraduate Competition
**Graduate Competition