

96th ANNUAL TECHNICAL MEETING
OKLAHOMA ACADEMY OF SCIENCE
TULSA COMMUNITY COLLEGE – SOUTHEAST CAMPUS

TABLE OF CONTENTS

OAS Statement of Purpose and Sponsored Activities	Front Cover
Program Summary	2
General Information	3
Parking	
Registration	
Membership Dues	
Guidelines for Submitting Manuscripts to <i>POAS</i>	
Assistance	
Special Notes	4
Sectional Meeting Programs	
Biological Sciences - Botany	5
Biological Sciences - Zoology	7
Geology	8
Physical Sciences	9
Social Sciences	10
Science Education	11
Geography	12
Fish and Wildlife Conservation	13
Microbiology	14
Engineering Sciences	15
Biochemistry and Biophysics	16
Microscopy	18
Mathematics and Computer Science	20
Environmental Sciences and Planning	21
Biomedical Sciences	22
OAS Presidents Past and Present	23
Map of TCC Campus	Inside Back Cover

96th ANNUAL TECHNICAL MEETING
OKLAHOMA ACADEMY OF SCIENCE
TULSA COMMUNITY COLLEGE – SOUTHEAST CAMPUS

PROGRAM SUMMARY

Thursday, 1 November 2007

6:30 p.m. Executive Council Dinner and Meeting Fireplace Lounge
Student Union

Friday, 2 November 2007

7:30 a.m. - 10:00 a.m. Registration for Technical Meeting South Atrium
Science/Math Center

8:30 a.m. - 11:00 a.m. Concurrent Scientific Paper Sessions Science/Math Center

Section A	Biological Sciences – Botany	Room 8167
Section A	Biological Sciences – Zoology.....	Room 8169
Section B	Geology	not meeting
Section C	Physical Sciences (meeting with Engineering Sciences)	Room 8279
Section D	Social Sciences	not meeting
Section E	Science Education	Room 8254
Section F	Geography	not meeting
Section G	Fish and Wildlife Conservation	Room 8258
Section H	Microbiology	Room 8277
Section I	Engineering Sciences (meeting with Physical Sciences)	Room 8279
Section J	Biochemistry and Biophysics	Room 8252
Section K	Microscopy	Room 8296
Section L	Mathematics & Computer Science	Room 8177
Section M	Environmental Sciences & Planning	Room 8244
Section N	Biomedical Sciences	Room 8256
All Sections	Posters	South Atrium

11:00 a.m. **Section Meetings** Meeting Rooms Above
Election of Section Vice-Chair.

11:30 a.m. **Academy Business Meeting** Room 8167
All OAS members are encouraged to attend. Science/Math Center
Visitors are welcome.

12:00 p.m. - 1:30 p.m. **Academy Luncheon and Plenary Address** Studio Theater
Admission by ticket only.

John K. Johnson
Professor of Computer Science
University of Science and Arts of Oklahoma
A Neurologically-Inspired Paradigm for Autonomous Robotics

2:00 p.m. - 5:00 p.m. Concurrent Scientific Paper Sessions

GENERAL INFORMATION

Name Badges: Name badges, provided upon registration, must be worn at all times by all individuals attending Academy sectional 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: Free parking is available in lots 6, 8, and 9.

On-site Registration Fees: Members - \$20.00; Non-members - \$25.00;
Student members - \$10.00; Student non-members - \$15.00;
Luncheon tickets (if available) - \$20.00

2007 and 2008 Dues are Payable: The OAS registration desk will accept dues payments.
Professional - \$25.00; Graduate/Undergraduate Student - \$15.00;
Family - \$30.00; Life - \$500.00

Guidelines for Paper Publication: Papers may be published in the *Proceedings of the Oklahoma Academy of Science*, subject to the editorial policies as stated in *POAS*, Volume 82 and review of the Editorial Board. OAS members are charged \$30-\$35 per page and non-members are charged \$90-\$105 per page.

Executive Secretary-Treasurer: Inquiries concerning upcoming OAS activities and membership may be directed to Dr. David Bass, OAS Executive Secretary-Treasurer, Campus Box 90, University of Central Oklahoma, Edmond OK 73034, 405-974-5772, dbass@ucok.edu.

No Smoking: Please, no smoking in any of the buildings on the campus. Also, food and drink are not permitted in any meeting room. Thank you.

Refreshments: Food and drink will be available in the south atrium of the Science and Mathematics Center during registration and breaks.

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

Buildings:	Bldg. #6	Studio Theater
	Bldg. #8	Science and Mathematics Center
	Bldg. #9	Student Union

SPECIAL NOTES

John K. Johnson received his bachelor of science in medical technology with an emphasis in microbiology and a Masters degree in electrical engineering, focusing in BioMedical Engineering. His Ph.D. is actually a dual degree in electrical engineering and computer engineering from the University of Missouri – Columbia. Following graduation, Dr. Johnson worked for NASA at the Johnson Space Center in Houston in the Mission Manager's Office for integration of Spacelab in the space shuttle. He has taught at USAO in Chickasha since 1984 and currently serves as a Professor of Computer Science. His latest project involved developing a robotic-driven vehicle with a group of USAO students

Special thanks are extended to the **site coordinator Dr. Joe Parli**, Associate Dean of the Science and Mathematics Division at Tulsa Community College – Southeast Campus, who coordinated all aspects of the meeting, including room arrangements, projectors, luncheon, and symposium.

Upcoming Meetings:

2008 Oklahoma Junior Academy of Science, East Central University, March 27-29

2008 Spring Field Meeting, Beavers Bend State Park, April 18-20

SECTION A: BIOLOGICAL SCIENCES – BOTANY
Room 8167

Morning Session – Moderator: Bruce Smith
McLoud High School

- 8:30 **Heterogeneous Selection on Trichome Production in Alaskan *Arabidopsis lyrata* subsp. *kamchatica*.** Janette A. Steets, Naoki Takebayashi, Diana E. Wolf, Oklahoma State University, Institute of Arctic Biology, University of Alaska.
- 8:45 **Distribution of a Tymovirus in Time and Space in *Asclepias viridis* from the Tallgrass Prairie Preserve of Oklahoma.** Byoung-eun Min, Graham Wiley, Tracy Feldman, Vijay Kumar, Guoan Shen, Marilyn Roossinck, Bruce A. Roe, Michael Palmer, Ulrich Melcher, Jeanmarie Verchot-Lubicz, Richard S. Nelson, Oklahoma State University, S.R. Noble Foundation, University of Oklahoma.
- 9:00 **Update on *Xanthoparmelia* and Other Lichens of the Wichita Mountains Wildlife Refuge.** Sheila Strawn, University of Central Oklahoma.
- 9:15 **Floristic Inventory of the Ozark Plateau National Wildlife Refuge.** Will F. Lowry, Mary E. Gard, R.J. Tyrl, Oklahoma State University.
- 9:30 **Initial Results of a Study of the Toxicity of *Tephrosia virginiana* “Devil’s Shoestring” (Fabaceae).** Mary E. Gard, R.J. Tyrl, Oklahoma State University.
- 9:45 Break
- 10:00 **Germination Dynamics of Four Heterocarpic Gumweeds.** Phil Gibson, University of Oklahoma.
- 10:15 **The Genus *Sideroxylon* (Sapotaceae) in North America.** J. Matt Jones, Wayne Elisens, University of Oklahoma.
- 10:30 **Biomass for Biofuels: Unraveling the Genetics of Branching in Panicoid Prairie Grasses.** Andrew Doust, Oklahoma State University.
- 10:45 ***Mushrooms of San Gerardo de Dota.** R.A. Schaefer, Southern Nazarene University.
- 11:00 **Section A Business Meeting, Room 8167**
- 11:30 **Academy Business Meeting, Room 8167**
- 12:00 **Academy Luncheon, Studio Theater**

* Undergraduate Competition

SECTION A: BIOLOGICAL SCIENCES – BOTANY

(continued)

2:00 **Flora of Oklahoma Board Meeting**

Poster

A Comparison of Vascular Plant Communities on Grazed and Ungrazed Gypsum Outcrops in the Cimarron Gypsum Hills, Northwestern Oklahoma. Kristi D. Rice, University of Central Oklahoma.

SECTION A: BIOLOGICAL SCIENCES – ZOOLOGY
Room 8169

Moderator: Greg Wilson
University of Central Oklahoma

- 9:30 **Comparison of Biodiversity of Night-Flying Insects in Primary and Secondary Cloud Forests.** Sharon C. Young, Southern Nazarene University.
- 9:45 ***Tick Ecology in Urban Environments.** Mary Henry, Kristen Baum, Oklahoma State University.
- 10:00 **++Invasive House Sparrows as Alternative Vertebrate Hosts for Buggy Creek Virus.** Valerie A. O'Brien, Charles R. Brown, University of Tulsa.
- 10:15 **Spatial Learning in Two Species of Lizard.** Mark A. Paulissen, Northeastern State University.
- 10:30 ***A Population Study of the Green Spiny Lizard (*Sceloporus malachiticus*) in the Cloud Forest of San Gerardo de Dota.** B.M. Weatherspoon, Southern Nazarene University.
- 11:00 **Section A Business Meeting,** Room 8167
- 11:30 **Academy Business Meeting,** Room 8167
- 12:00 **Academy Luncheon,** Studio Theater

Poster

Comparative Phylogeography of Two Species of *Peryomyscus* in Oklahoma and Adjacent States. Kimberly Koppari, Amy Cluck, Chris Dunn, Emily Bowles, Miranda Hintergardt, Sarah Smith, Tiffany Cloud, Vagan Mushegyan, Gregory M. Wilson, NSF SURE-STEP Summer Bridge, University of Central Oklahoma.

- * Undergraduate Competition
++ Graduate Competition

SECTION B: GEOLOGY

**Section Chair: William Lyon
East Central University**

No presentations or business meeting.

Section Chair will remain the same.

Vice-Chair still needed.

SECTION C: PHYSICAL SCIENCES
(Meeting jointly with Engineering Sciences Section I)
Room 8279

Moderator: Karen Williams
East Central University

- 10:00 **The Utilization of Ultrasonic Waves to Measure Properties of Light and Matter.**
K.A. Williams, East Central University.
- 10:15 **Field Energy in Gravitomagnetic Field Theory.** W. J. Wilson, University of
Central Oklahoma.
- 10:30 **C++ and Graphical User Interface Program to Estimate Monopolar and Bipolar
Current Spreads in Cochlear Implant.** Saroj Sigdel, Mohamed Bingabr,
University of Central Oklahoma.
- 10:45 **Characterization of Detector Scintillator Effect on Interventional Device
Visualization in X-Ray Fluoroscopy.** Yuhao Jiang, University of Central
Oklahoma.
- 11:00 **Sections C & I Joint Business Meeting, Room 8279**
- 11:30 **Academy Business Meeting, Room 8167**
- 12:00 **Academy Luncheon, Studio Theater**

Poster

***The Role of Designing Robots to Promote the Interest of Incoming College
Freshman Students to Major in Engineering and Computer Science Fields.**
Nathan Steel, Matthew Mounce, Wei Pee, Baja Jassemnejad, University of Central
Oklahoma.

* Undergraduate Competition

SECTION D: SOCIAL SCIENCES

**Section Chair: Mary Dzindolet
Cameron University**

No presentations or meeting.

Section Chair will remain the same.

Vice-Chair is still needed.

**SECTION E: SCIENCE EDUCATION
Room 8254**

**Moderator: Erica Corbett
Southeastern Oklahoma State University**

- 9:00 **Development of a Freshman Biomedical Learning Community Through Course Clustering.** Anne L. Ewing, University of Central Oklahoma.
- 9:15 **Exploring Bioinformatics in the Genetics Laboratory.** K. A. McDowell, Northeastern State University.
- 9:30 **Designing and Conducting a Field Trip Course.** D. R. Wood, Southeastern Oklahoma State University.
- 9:45 **Independent Research Projects in Ecology Classes – Costs and Benefits.** Erica A. Corbett, Southeastern Oklahoma State University.
- 10:00 **Teaching Teachers to Teach Science Safety.** Kurtis J. Koll, Cameron University.
- 11:00 **Section E Business Meeting,** Room 8254
- 11:30 **Academy Business Meeting,** Room 8167
- 12:00 **Academy Luncheon,** Studio Theater

SECTION F: GEOGRAPHY

**Section Chair: Greg Plumb
East Central University**

No presentations or meeting.

Section Chair and Vice-Chair will remain the same.

SECTION G: FISH AND WILDLIFE CONSERVATION
Room 8258

Morning Session – Moderator: Dan Shoup
Oklahoma State University

- 9:30 **++Landscape Characteristics Influencing a Recolonizing Black Bear Population in Southeastern Oklahoma.** Angela G. Brown, David M. Leslie, Jr., Eric C. Hellgren, Oklahoma Cooperative Fish and Wildlife Research Unit, Oklahoma State University, Cooperative Wildlife Research Lab, Southern Illinois University.
- 9:45 **Fifty Years of Sedimentation in Lake Texoma: What Happens as it Fills?** Angela T.M. Patton, Southeastern Oklahoma State University.
- 10:00 **Forest Succession on Depositional Lands Associated with an Aging Reservoir: A Case Study on Lake Texoma.** T.M. Patton, J.A. Tucker, Southeastern Oklahoma State University, The Nature Conservancy.
- 10:15 **Recovery of a Fish Community Following a Golden Algae Kill in Lebanon Pool, Lake Texoma.** J.R. Morel, T.M. Patton, C.W. Hargrave, Southeastern Oklahoma State University, Sam Houston State University.
- 10:30 ***Interactions of Species in the Savegre River through Rainbow Trout Stomach Comparisons.** Ashley Koskiniemi, Southern Nazarene University.
- 11:00 **Section G Business Meeting,** Room 8258
- 11:30 **Academy Business Meeting,** Room 8167
- 12:00 **Academy Luncheon,** Studio Theater

* Undergraduate Competition

++Graduate Competition

SECTION H: MICROBIOLOGY

Room 8277

Moderator: David Nagle

University of Oklahoma

- 9:00 **Predominant Fungal Genera Found in Homes with Suspected Health Risk.** C.L. Biles, East Central University.
- 9:15 **Characterization of an Osmoprotective Locus in *Pseudomonas aeruginosa*.** Arden Aspedon, Southwestern Oklahoma State University.
- 9:30 ***Characterization of G Protein MAP Kinase Interactions Using a Yeast Two-Hybrid Screen.** Ruth Weidman, Jeff Hadwiger, Brent Raisley, Oklahoma State University.
- 9:45 **DNA Damage Repair in the Great Salt Plains Cyanobacteria: *Aphanothece* sp. (SP24).** R. Biswas, R.V. Miller, Oklahoma State University.
- 10:00 **Diversity and Quantification of Candidate Division SR1 in Various Anaerobic Environments.** James P. Davis, Mostafa Elshahed, Oklahoma State University.
- 10:15 ***Microbes Tan Naked.** B. Brooks, R.V. Miller, Oklahoma State University.
- 11:00 **Sections H Business Meeting,** Room 8277
- 11:30 **Academy Business Meeting,** Room 8167
- 12:00 **Academy Luncheon,** Studio Theater

Posters

Lysine as Alternative Therapy in Herpes Simplex Virus Infection: A Review of Research. E.L. Blewett, J.L. Kisamore, Oklahoma State University Center for Health Sciences, University of Oklahoma.

Fusion Protein Cleavage is Not Necessary for Virus Infectivity of Bovine Herpesvirus 1 (BHV-1). E.L. Blewett, Oklahoma State University Center for Health Sciences.

* Undergraduate Competition

SECTION I: ENGINEERING SCIENCES
(Meeting jointly with Physical Sciences Section C)
Room 8279

Moderator: Karen Williams
East Central University

- 10:00 **The Utilization of Ultrasonic Waves to Measure Properties of Light and Matter.**
K.A. Williams, East Central University.
- 10:15 **Field Energy in Gravitomagnetic Field Theory.** W. J. Wilson, University of
Central Oklahoma.
- 10:30 **C++ and Graphical User Interface Program to Estimate Monopolar and Bipolar
Current Spreads in Cochlear Implant.** Saroj Sigdel, Mohamed Bingabr,
University of Central Oklahoma.
- 10:45 **Characterization of Detector Scintillator Effect on Interventional Device
Visualization in X-Ray Fluoroscopy.** Yuhao Jiang, University of Central
Oklahoma.
- 11:00 **Sections C & I Joint Business Meeting,** Room 8279
- 11:30 **Academy Business Meeting,** Room 8167
- 12:00 **Academy Luncheon,** Studio Theater

Poster

***The Role of Designing Robots to Promote the Interest of Incoming College
Freshman Students to Major in Engineering and Computer Science Fields.**
Nathan Steel, Matthew Mounce, Wei Pee, Baja Jassemnejad, University of Central
Oklahoma.

* Undergraduate Competition

SECTION J: BIOCHEMISTRY & BIOPHYSICS
Room 8252

Moderator: Michael Massiah
Oklahoma State University

- 8:30 **++Development of Microarray Hybridization for Detection of Known & Related Novel Plant Viruses in Natural Settings.** Veenita Grover, Ulrich Melcher, Marlee Pierce, Oklahoma State University.
- 8:45 ***Expression, Purification and Characterization of a Protein from the Insect Lipid Droplets, LSD1.** Laticia Rivera, Jose L. Soulages, Estela L. Arrese, Oklahoma State University.
- 9:00 ***Purification and Characterization of CcmR, CmpR & Ycf30, LysR-Type Transcriptional Regulators Found in Synechocystis sp. PCC6803.** Marla Carrick, Oklahoma State University.
- 9:15 ***Bioinformatic Analysis of Photosystem II of the Water Oxidation Site.** Curtis Neveu, Oklahoma State University.
- 9:30 **++Proton Coupled Electron Transfer in Photosynthetic Oxygen Evolution?** Preston Dilbeck, Oklahoma State University.
- 9:45 Break
- 10:00 **++Paralogous Evolution of LysR-Type Transcriptional Regulator's (LTTR) Found in Synechocystis sp. PCC6803.** Shawn Daley, Oklahoma State University.
- 10:15 **++ *In vitro* Study of the Photoassembly of the Water Oxidation Complex of Photosystem II.** Aparna Nagarajan, Oklahoma State University.
- 10:30 **Photoassembly of the Mn₄-Ca Cluster of the H₂O-Oxidation Complex Alters the Coupling of the Reaction Center with the Light-Harvesting Phycobilisome.** Hong Jin Hwang, Oklahoma State University.
- 10:45 **Creating a Novel Assay for Peptide Permeability.** Ryan T. Morgan, Caroline L. O'Farrell, Matthew C.T. Hartman, Oral Roberts University, Virginia Commonwealth University.
- 11:00 **Section J Business Meeting, Room 8252**
- 11:30 **Academy Business Meeting, Room 8167**
- 12:00 **Academy Luncheon, Studio Theater**

* Undergraduate Competition

++Graduate Competition

SECTION J: BIOCHEMISTRY & BIOPHYSICS

(continued)

Posters

***Metagenomics for the Identification of Plants in the Tallgrass Prairie Preserve.**

Tim Lee, Vijay Muthukumar, Tao Ding, Marlee Pierce, Ulrich Melcher, Graham Wiley, Bruce Roe, Oklahoma State University, University of Oklahoma.

Expression Profiling of Healing Response in Nanofiber-Impaled Chinese Hamster Ovary Cells.

P. R. Hoyt, A. Melechko, B. Sumner, R. Conners, T.E. McKnight, Oklahoma State University, Oak Ridge National Laboratory.

* Undergraduate Competition

SECTION K: MICROSCOPY
Room 8296

Morning Session – Moderator: Dean Phillips
ConocoPhillips

- 9:00 *Keynote Address: **Microbial Ecology in Extreme Environments: Automobile Air Conditioning Systems***, Dr. Robert Simmons, Georgia State University.
- 10:15 Break
- 10:30 †**Single Flat Gold Nanoparticle Microscopy & Spectroscopy: A Study of the Effect of Nanoparticle Treatment.** W.D. Tennyson, C.E. Allen, D.S. Hartnett, M.D. McCutchen, D.H. Dahanayaka, L.A. Bumm, University of Oklahoma.
- 10:45 †**Ultrastructural Features of a Human Placenta with Acute Chorioamnionitis.** M. Collins, S. Hyde, B. Meek, O. McClain. St. Francis Pathology Department, Anatomy and Cell Biology Department, Oklahoma State University College of Osteopathic Medicine.
- 11:00 ***Parvalbumin-Containing Amacrine Cells of the Monkey Retina.** Kathryn Klump, David W. Marshak, Oral Roberts University, University of Texas Medical School at Houston.
- 11:15 **OMS Business Meeting**
- 11:45 **Ugly Bug Contest Judging and Lunch**

* Undergraduate Competition

† OMS Timpano Competition

SECTION K: MICROSCOPY
Room 8296

Afternoon Session – Moderator: Preston Larson
University of Oklahoma

- 2:00 **Stalking the Silicon Dumbbell.** Gregory W. Strout, Eddie Vaughn, S. Mishina, Tetsuya Mashima, Matthew Johnson, Mark Curtis, Preston R. Larson, Joel Key, Scott Russell, University of Oklahoma, JEOL.
- 2:15 **Virtual Microscopy in the Medical Histology Course at OSU-College of Osteopathic Medicine.** B. Meek, J. McCosh, Anatomy and Cell Biology Department, Oklahoma State University College of Osteopathic Medicine.
- 2:30 **A Tour of Ecuador and the Galapagos Islands.** Terry Colberg, Oklahoma State University.

Posters:

***A Statistical Analysis of Pollen Grains, Ambrosia sp. and Poa sp. in South Tulsa, Oklahoma and a Comparison of 2004 Data Using Forensic Palynology.**
Kim, So-Young, Dimiceli, V., W.C. Perryman, Oral Roberts University.

* Undergraduate Competition

SECTION L: MATHEMATICS & COMPUTER SCIENCE
Room 8177

Moderator: Bill Walker
East Central University

- 8:30 **How Do We Define Artificial Intelligence?** Molissa Derk, Oklahoma City University.
- 8:45 **Data Thinning: New Technology or Just a New Name.** Clay B. Carley III, East Central University.
- 9:00 **Component-Oriented Programming.** Hieu Vu, Murray State College.
- 9:15 **The Mathematics of Vortex Wakes.** Kevin O’Neil, University of Tulsa.
- 9:30 **Introduction to RSA – A Tutorial.** Mary Kay Tarver, East Central University.
- 9:45 ***Forecasting Box Office Success with Neural Networks and Text Mining.** Michael Henry, Ramesh Sharda, Dursen Delen, Oklahoma State University.
- 10:00 ***Directional Relation Extraction from Biomedical Text.** Cory Giles, Oklahoma Christian University.
- 10:15 **Steganography: How to Hide in Plain Sight.** Bill Walker, East Central University.
- 10:30 **CSI Tulsa: Statistics Applied to Forensic Palynology Revisited.** V. Dimiceli, W. Perryman, Oral Roberts University.
- 11:00 **Section L Business Meeting,** Room 8177
- 11:30 **Academy Business Meeting,** Room 8167
- 12:00 **Academy Luncheon,** Studio Theater

* Undergraduate Competition

**SECTION M: ENVIRONMENTAL SCIENCES & PLANNING
Room 8244**

**Moderator: Bill Walker
East Central University**

- 8:30 ***Raymond Jungle: Cutting Edge Landscape Architect.** Michelle Bryant, Oklahoma State University.
- 8:45 ***Pamela Burton & Company: Preeminent Landscape Architecture Office.** Jill Baumgartner, Oklahoma State University.
- 9:00 ***Reed Hilderbrand: Award Winning Landscape Architect.** James Elam, Oklahoma State University.
- 9:15 **Contrast of Russia's Greatest Squares in Moscow and St. Petersburg.** Charles Leider, Oklahoma State University.
- 9:30 **Rainwater Harvesting: Rediscovering a Renewable Resource.** Michael Holmes, Oklahoma State University.
- 9:45 Break
- 10:00 ***Water Chemistry Dynamics of the Rio Sevegre.** Clinton Ingersol, Southern Nazarene University.
- 10:15 **+PCR Assay to Detect Chicken Feces.** Nebojsa Kezunovic, Daniel Owen, Cindy R. Cisar, Northeastern State University.
- 11:00 **Section M Business Meeting,** Room 8244
- 11:30 **Academy Business Meeting,** Room 8167
- 12:00 **Academy Luncheon,** Studio Theater

Poster:

***An Assessment of the Water Quality of Fred Creek in Tulsa, OK.** Esther Kisseih, John Korstad, Hal Reed, Oral Roberts University.

* Undergraduate Competition

**SECTION N: BIOMEDICAL SCIENCES
Room 8256**

**Moderator: Melville Vaughan
University of Central Oklahoma**

- 8:30 ***Carvacrol-Induced Apoptosis of Human Carcinoma Cells *in vitro*.** Kathryn E. Klump, Joel S. Gaikwad, Oral Roberts University.
- 8:45 ***Levels of Phosphorylated CaMKII in the Rat Hippocampus following Traumatic Brain Injury.** L.L. Addington, Oklahoma Christian University.
- 9:00 ***Silver Dihydrogen Citrate: Maximum Tolerated Dose and Silver Analysis in Mice.** Crystal Stone, Oklahoma Christian University.
- 9:15 ***The Characterization of Nylon Wool Adherent Cells that Control the Growth of Meth A Sarcoma *in vitro* and *in vivo*.** Megan Nasworthy, D. Kim Burnham, Oklahoma State University.
- 9:30 ***Pre-Clinical Evaluation of Silver Dihydrogen Citrate through the Ames and Micronucleus Tests.** Sarah Manley, Oklahoma Christian University.
- 9:45 **Differential Gene Expression of Murine Blastocyst Stage Embryos and Murine Embryonic Stem Cells.** Sarah Myer, Lee Rickords, Oklahoma State University Center for Health Sciences.
- 11:00 **Section N Business Meeting, Room 8256**
- 11:30 **Academy Business Meeting, Room 8167**
- 12:00 **Academy Luncheon, Studio Theater**

* Undergraduate Competition

OKLAHOMA ACADEMY OF SCIENCE PRESIDENTS

1910	H. L. Lane, OU	1955	R. E. Olson, OU
1911	D. W. Othorn, Oklahoma City	1956	A. M. Stebler, OAMC
1912	S. W. Reaves, OU	1957	D. E. Howell, OAMC
1913	C. W. Shannon, OU	1958	G. J. Goodman, OU
1914	No meeting	1959	E. Lucas, OU
1915	C. W. Shannon, OU	1960	P. E. Smith, OUMS
1916	C. N. Gould, OU	1961	E. M. Hodnett, OSU
1917	L. C. Raiford, ISU	1962	H. G. Barclay, TU
1918	No meeting	1963	G. A. Moore, OSU
1919	No meeting	1964	A. D. Buck, NOJC
1920	M. M. Wickham, Norman	1965	J. E. Webster, OSU
1921	A. F. Reiter, PU	1966	C. R. Williams, PU
1922	J. B. Thoburn, Oklahoma City	1967	C. D. Riggs, OU
1923	R. O. Whitenton, OAMC	1968	E. A. Reynolds, SWSC
1924	S. Weidman, OU	1969	L. V. Scott, OUHSC
1925	(spring) C. E. Sanborn	1970	C. C. Carpenter, OU
1925	(fall) H. L. Dodge, OU	1971	P. Buck, TU
1926	J. H. Could, OAMC	1972	W. A. Carter, ECSU
1927	C. N. Gould, OU	1973	C. J. Mankin, OU
1928	O. M. Smith, OAMC	1974	N. N. Durham, OSU
1929	A. Richards, OU	1975	B. Shirley, TU
1930	L. Long, Ok. City	1976	G. W. Todd, OSU
1931	A. O. Weese, OU	1977	D. E. Kizer, Noble Foundation
1932	H. Patterson, OAMC	1978	G. Odell, OSU
1933	J. E. Knowles, PU	1979	R. Couch, ORU
1934	F. G. Brooks, OCU	1980	G. Wolgamott, SWSU
1935	C. E. Decker, OU	1981	E. Rice, OU
1936	H. J. Harper, OAMC	1982	E. Grigsby, NSU
1937	B. D. Barclay, TU	1983	J. Sokatch, OUHSC
1938	C. M. Perry, OU	1984	M. Whitmore, OU
1939	H. D. Chase, TU	1985	J. Black, OBU
1940	G. L. Cross, OU	1986	J. Wilhm, OSU
1941	R. W. Jones, OAMC	1987	M. K. Patterson, Noble Foundation
1942	H. I. Featherly, OAMC		
1943	O. F. Evans, OU	1988	M. P. Carpenter, OU
1944	V. G. Heller, OAMC	1989-1990	K. E. Conway, OSU
1945	J. R. Nielsen, OU	1991-1992	J. K. McPherson, OSU
1946	O. C. Dermer, OAMC	1993	J. R. Estes, OU
1947	J. T. Self, OU	1994-1995	J. D. Tyler, CU
1948	L. S. McLeod, TU	1996-1997	C. Taylor, SEOSU
1949	J. C. Shirley, PU	1998-1999	R. J. Tyrll, OSU
1950	H. Taylor, OCW	2000-2001	D. Bass, UCO
1951	H. W. Larsh, OU	2002-2003	C. Clifford, NSU
1952	V. B. Monnett, OAMC	2004-2005	S. Young, SNU
1953	S. P. Massie, LU	2006-2007	S. Barber, OCU
1954	A. N. Murray, TU		