

THE SOURCE

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SWOSU to Host Oklahoma Research Day

Oklahoma Research Day will be held at Southwestern Oklahoma State University in 2019 and 2020. Oklahoma Research Day started in 1999 at the University of Central Oklahoma to showcase the research and scholarly activities of faculty and students from all over Oklahoma. The first Oklahoma Research Day had 233 poster presentations showed by faculty and staff. It has since grown to over 550 presentations and over 1,100 registered students, faculty, and guests. SWOSU is proud to host such a prestigious event and open our campus to fellow institutions of Higher Education. The next Oklahoma Research Day is scheduled for **Friday, March 8, 2019**.

SWOSU Research Fair Moved to November 2018

The annual SWOSU Research and Scholarly Activity Fair has been moved to **Thursday, November 15, 2018**. The fair will be hosted in the Wellness Center from 12:00 p.m. to 3:00 p.m. The reason of the date change is due to the timing of Oklahoma Research Day. Abstract submission will open in mid-September and the submission deadline is **Wednesday, October 17, 2018**. Check the OSP website for more information. [Office of Sponsored Programs](#)



Inside This Issue

Page 1	SWOSU to Host Next ORD
Page 1	SWOSU Research Fair date change
Page 2-6	SWOSU Research Fair
Page 7-10	Scholarly and Academic Activity
Page 11	Grants, Contracts, and Proposals
Page 12-13	Funding Opportunities
Page 13-14	Upcoming Events

Over 250 Faculty and Students Participate in Annual SWOSU Fair

More than 250 Southwestern Oklahoma State University students and faculty presented 158 research projects at SWOSU's 25th Annual Research and Scholarly Activity Fair in the Spring of 2018 in the SWOSU Wellness Center on the Weatherford campus. This event gives students an opportunity to present their research and other scholarly activity in poster or podium presentation format. Many of the presentations have been or will be presented at various organizational events at the state, regional, and national levels.

High school students from Cordell Public Schools and the Francis Tuttle Technology Center also attended the fair. Nine students from the Western Technology Center (WTC) Biomedical Academy in Burns Flat, sponsored by Biomedical instructor Mr. Shane Brashears, also presented at the fair. Students from WTC that presented included Teodora Rodriguez, Zoraida Uribe, Kazik Earl, Demi Estrada, Halle Hartman, Tessa Ingram, Jasmine Meyer, Sydney Goodwin, and Paige Parker. As part of their attendance at the Fair, the high school students had the option to tour the Stafford Air and Space Museum and have lunch at Duke's Diner on campus.

The Fair was sponsored by the University Research and Scholarly Activity Committee and the SWOSU Office of Sponsored Programs. The committee members include: Dr. Lisa Appeddu (Pharmacy), chair; Dr. Becky Bruce (Social Sciences); Dr. Rickey Cothran (Biological Sciences); Mr. Ed Klein (Education); Dr. Denise Landrum-Geyer (Language and Literature); Ms. Erin Ridgeway (Library); Dr. Jeremy Evert (Computer Science); Ms. Kim Zackary (Sayre); Dr. Yolanda Carr (Sponsored Programs), Dr. Veronica McGowan (CETL), and Mr. C. J. Smith (Sponsored Programs). Student committee members were Suzanne Parker (Psychology) and Jay Garber (Biological Sciences).

SWOSU Faculty who participated with the poster and podium presentations, either as sponsors or as presenters included: Dr. Aimee Henderson, Dr. Amanda Smith, Dr. Anne Pate, Dr. Becky Bruce, Dr. Christopher Horton, Ms. Cindi Albrightson, Dr. Dan Brown, Dr. David Esjornson, Dr. Hardeep Saluja, Dr. Jeremy Evert, Dr. Jieun Chang, Dr. Jimena Aracena, Ms. Juli Bell, Dr. Kelley Logan, Dr. Kevin Collins, Ms. Kristin Woods, Dr. Les Ramos, Dr. Lisa Castle, Ms. Madeline Baugher, Dr. Melinda Burgess, Dr. Regina McGrane, Dr. Rickey Cothran, Dr. Scott Long, Dr. Sophia Lee, Dr. Stephen Burgess, Ms. Tee Kesnan, Dr. Tim Hubin, Dr. Trevor Ellis, Dr. Tugba Sevin, Dr. Victoria Gaydosik, Dr. Vijayakumar Somalinga, Dr. Wayne Trail, Dr. William Kelly, and Dr. Zach Jones.

Highlights From the SWOSU 25th Annual Research and Scholarly Activity Fair



Students Arpana James and Shannon Marcar



Students Taysi Peterson, Marianne Wood, and Isela Sandoval

31

Ethylene Cross-Bridged Pentazamacrocycles and Their Transition Metal Complexes

Elisabeth Allbritton, Tara L. Fitcher, Albert C. Oliver, Jeanette A. Krause, Timothy J. Heibel

1. Chemistry, Southeastern Oklahoma State University, 100 Campus Drive, Weatherford, OK, United States
 2. Chemistry, University of Cincinnati, Cincinnati, OH, United States
 3. Chemistry and Biochemistry, University of North Dakota, Grand Forks, ND, United States

Having worked in the field of ethylene cross-bridged pentazamacrocycles for decades, our group has recently sought to explore ethylene cross-bridged pentazamacrocycles. A patent method for producing ethylene cross-bridged 1,4,7,10,13-pentazamacrocycle (15enN5) was reproduced to give the "parent" ethylene cross-bridged pentazamacrocycle having three secondary amines in 10% yield. A novel route, based on glyoxal condensation, to the fully substituted ethylene cross-bridged pentazamacrocycle (15enN5) was successfully designed and carried out. Complexation of these ligands with a number of transition metals has been successful, with X-ray crystal structures of several intermediates and transition metal complexes obtained. We will present the synthetic routes and the structural characterization of these compounds.

1. Cross-Bridged 15enN5 via Glyoxal Condensation of 15enN5:

2. Reproduced Patent Synthetic Route to ethylene cross-bridged 15enN5:

This method of producing cross-bridged pentazamacrocycles (15enN5) is a novel route.

1. Identify structure to produce ethylene cross-bridged pentazamacrocycle (15enN5) with three secondary amines. Compare to our synthetic route to see if it is possible to reproduce the patent synthetic route.

2. Identify structure to produce ethylene cross-bridged pentazamacrocycle (15enN5) with three secondary amines. Compare to our synthetic route to see if it is possible to reproduce the patent synthetic route.

3. Identify structure to produce ethylene cross-bridged pentazamacrocycle (15enN5) with three secondary amines. Compare to our synthetic route to see if it is possible to reproduce the patent synthetic route.

4. Identify structure to produce ethylene cross-bridged pentazamacrocycle (15enN5) with three secondary amines. Compare to our synthetic route to see if it is possible to reproduce the patent synthetic route.

5. Identify structure to produce ethylene cross-bridged pentazamacrocycle (15enN5) with three secondary amines. Compare to our synthetic route to see if it is possible to reproduce the patent synthetic route.



Student Elisabeth Allbritton

Understanding *Pseudomonas syringae* repulsion of competitors in the phyllosphere

Department of Biological Sciences, Southeastern Oklahoma State University

Abstract

The phyllosphere supports 10⁷ bacterial cells per gram of leaf tissue. This community includes commensal, mutualistic, and pathogenic bacteria that are constantly competing for heterogeneously distributed nutrients via antagonistic behaviors. *Pseudomonas syringae* is a foliar pathogen that causes crop loss. The signs of infection include lesions on leaves, yellowing of leaves, growth retardation, and reduced yield. To seek sites for infiltrating plant tissue, *P. syringae* uses a group movement, called swarming, that requires a surface lubricating biofilm called flagellin. Strains lacking the gene for flagellin biosynthesis (*flaA*) are nearly immobile in swarming conditions. Surprisingly, we observed movement by *flaA* away from a parent strain inoculated in close proximity. This led to the hypothesis that *P. syringae* senses swarming and/or flagellin production as a self-recognition signal to regulate antagonistic behaviors that repel competitors. To test this hypothesis, leaf colonizing bacteria were isolated from agricultural areas in Weatherford, OK. Because motility may serve as a *P. syringae* self-recognition signal, isolates were tested for ability to swarm, and isolates that lacked swarming capabilities were used for future experimentation. Non-swarming isolates were inoculated in close proximity to the *P. syringae* parent strain and repulsion was monitored. *P. syringae* exhibited repulsion of 50% of the environmental isolates. To determine if *P. syringae* competitor repulsion is specific to certain leaf colonizing bacteria, 16S rRNA sequencing will be used to identify repelled isolates. This discovery could be used in the future to inhibit repulsion by pathogenic bacteria, thereby decreasing their competitive advantage during colonization.

P. syringae as a species complex

P. syringae is able to cause disease in hundreds of plant species, including both monocots and dicots (Fig. 1). This bacteria is able to wipe out crops and cause 100% yield loss, proving to be detrimental to the well-being of plant species everywhere.

In some crops like wheat, the yield loss ranges from 5-20%, while in others like cantaloupe it is able to cause 100% yield loss, proving that it has significant variability depending on the plant [1].

P. syringae bioisurfactants

Bioisurfactants are surface compounds that microbes use to move along the surface of media. These amphiphilic molecules have both hydrophilic and hydrophobic properties, allowing them to reduce surface tension and swarm [2].

flaA is a mutant of *P. syringae* that lacks the genes for flagellin, bioisurfactant, and thereby lacks the ability to swarm (Fig. 2B) [4].

Observation: loss of bioisurfactants initiates repulsion by wild type strains

(A) 18 hrs, 17 hrs, 21 hrs, 28 hrs. (B) *flaA* WT, *flaA* WT, *flaA* WT, *flaA* WT. (C) *flaA* WT, *flaA* WT, *flaA* WT, *flaA* WT.

Fig. 3. (A) *flaA* does not move away from the point of inoculation when inoculated on its own. (B) *flaA* is repelled from the point of inoculation when grown beside wild type *P. syringae*. (C) *flaA* does not move without the presence of the wild type *P. syringae* in close proximity (Fig. 3A).

When placed beside *flaA*, wild type *P. syringae* is able to repel the *flaA* from the point of inoculation (Fig. 3B). Because *P. syringae* is able to repel *flaA*, it could also be used to repel microbes found in the environment.

Experimental design: detecting *P. syringae* repulsion of leaf microbes

- Leaf samples were taken from rural areas in Weatherford, OK.
- Isolates were obtained by plating leaf microbiota using serial dilution plating.
- Streak plates were created from the isolates that had unique colors or morphologies.
- Selected isolates were plated on 0.1% King B Agar to test for motility.
- Isolates that did not appear to move were reported to competition with *P. syringae*.

P. syringae repels leaf microbes

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Identifying repelled strains

Analysis of 16S rRNA from unknown isolates

- Cultures from repelled bacteria were grown overnight.
- DNA was extracted using a Wizard genomic DNA extraction kit.
- Polymerase chain reaction was performed using primers designed for the 515 and 806 base pairs of the 16S rRNA gene.
- The V4 region was amplified and confirmed by gel electrophoresis. The expected band size was 300 bp.
- Reactions were purified and sent for Sanger sequencing.
- Identify based on sequence will be determined using Blast.

Fig. 4. *P. syringae* is able to repel a portion of the environmental strains (A). Two of the strains that were repelled by the *P. syringae*. (B) Two strains that did not show repulsion due to *P. syringae*. (C) 6 of 13 isolates where repelled.

Conclusion and future direction

It was determined that *P. syringae* was able to repel certain leaf microbes from the environment. This experiment could be conducted on a plant to see if *P. syringae* can ward off harmful microbes to reduce the number of slight infected fields and crop losses from these bacteria. Observations need to be made to determine other stimuli that cause repulsion. It is not yet possible to determine if the bacteria is actively moving away from the wild type or if it is dying due to proximity, so antimicrobial activity should be investigated. The identity of repelled strains will help determine conserved characteristics in bacteria that repel by this mechanism.

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1. Allbritton, E., Fitcher, T., Oliver, A., Krause, J., Heibel, T. (2018) Ethylene cross-bridged pentazamacrocycles and their transition metal complexes. *Journal of Inorganic Chemistry*, 2018, 2018, 1-10.

2. Allbritton, E., Fitcher, T., Oliver, A., Krause, J., Heibel, T. (2018) Ethylene cross-bridged pentazamacrocycles and their transition metal complexes. *Journal of Inorganic Chemistry*, 2018, 2018, 1-10.

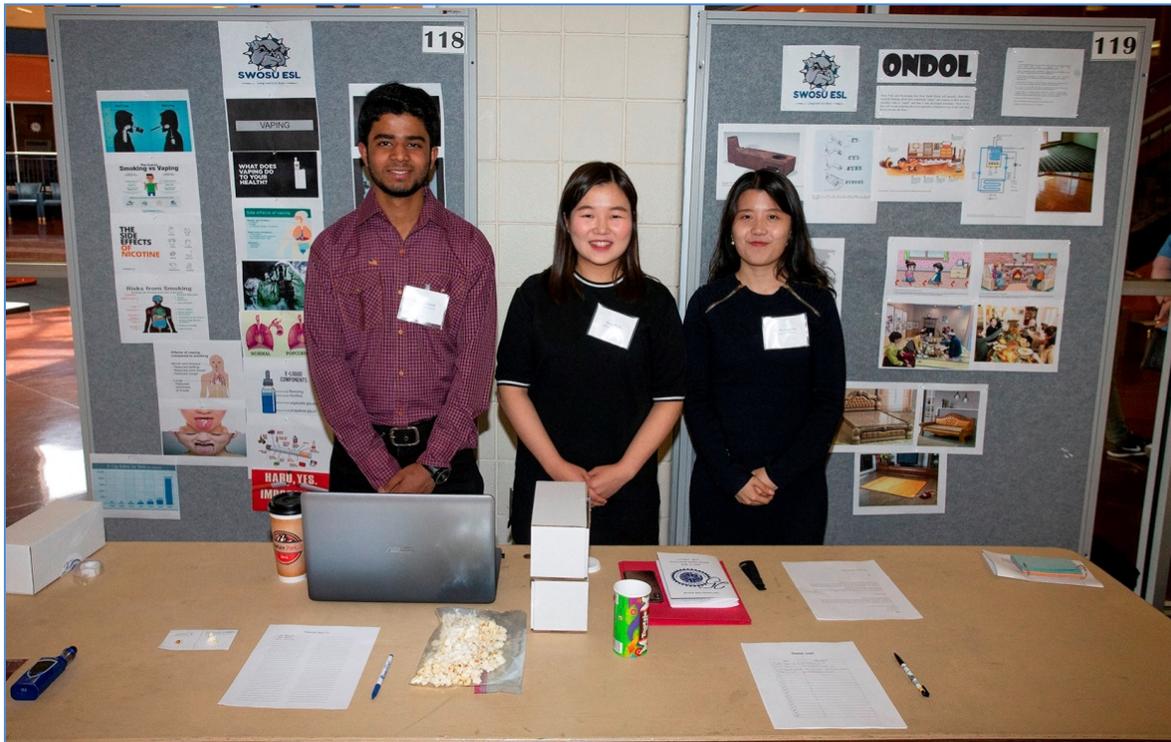
3. Allbritton, E., Fitcher, T., Oliver, A., Krause, J., Heibel, T. (2018) Ethylene cross-bridged pentazamacrocycles and their transition metal complexes. *Journal of Inorganic Chemistry*, 2018, 2018, 1-10.

4. Allbritton, E., Fitcher, T., Oliver, A., Krause, J., Heibel, T. (2018) Ethylene cross-bridged pentazamacrocycles and their transition metal complexes. *Journal of Inorganic Chemistry*, 2018, 2018, 1-10.

5. Allbritton, E., Fitcher, T., Oliver, A., Krause, J., Heibel, T. (2018) Ethylene cross-bridged pentazamacrocycles and their transition metal complexes. *Journal of Inorganic Chemistry*, 2018, 2018, 1-10.



Student Amelia McKennon



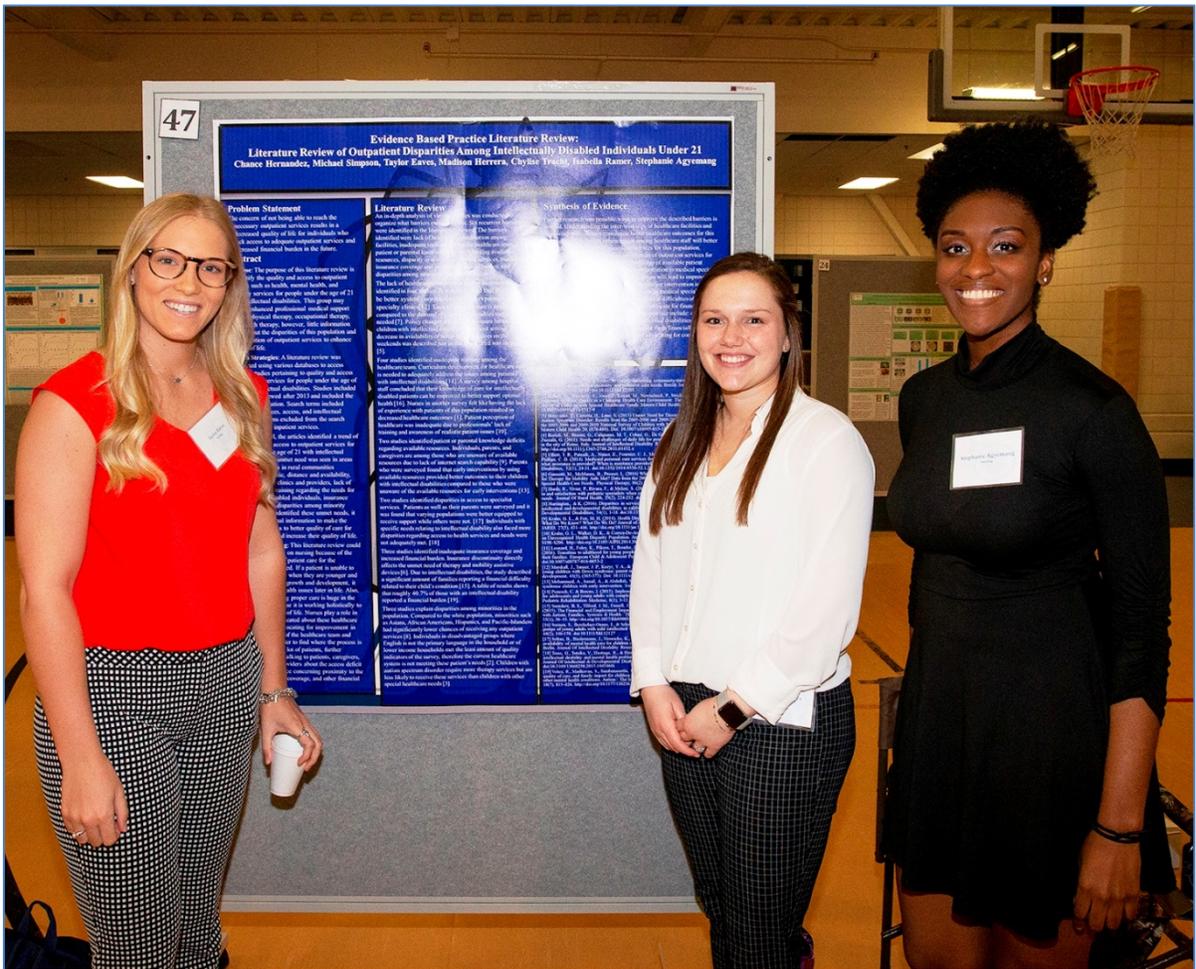
Students Hamzah Jamil, Jieun Park, and Hyekyong Seo



Students Kathryn McDowell and Tray Shortie



SWOSU University Research and Scholarly Activity Committee



Students Taylor Eaves, Madison Herrera, and Stephanie Agyemang

39

Measurement and Analysis of the 2017 Eclipse

JAXON TAYLOR; GARET CRISPIN; DANIEL GASSEN; EMILY TRAIL; BOUBACAR WANE; WAYNE TRAIL
DEPARTMENT OF CHEMISTRY AND PHYSICS, SOUTHWESTERN OKLAHOMA STATE UNIVERSITY, WEATHERFORD, OK 73096

MOTIVATION

The SWOSU Physics and Engineering Club, in an effort to study Total Solar Eclipse 2017, spent the summer of 2017 designing, building, and programming microcontroller instruments, and learning astrophotography, and the rest of 2017 into 2018 analyzing data.

BACKGROUND

Throughout the summer, members of the club spent many hours preparing for the eclipse by:

- Preparing several telescopes for solar photography and observation.
- Integrating (via software and hardware) telescopes, cameras, and computers.
- Programming and wiring microcontrollers to record light, temperature, relative humidity, and pressure.
- Finding optimal locations for measurements and observations.

After the eclipse, we began to analyze the data recorded from the microcontrollers and began to calculate the equations for the shadow, cone, and ellipse shape of the Moon's shadow on the Earth. Using geometry, trigonometry, linear algebra, and 3-D calculus, we were able to take basic data about the positions of the Sun and Moon and figure out the equation of the shadow cone of the moon. Then we found the equation for the ellipse. Using that equation and our microcontroller data, we can calculate the size, speed, and shape of the shadow on the Earth.



STUDYING THE SHADOW

The general equation for a cone is:

$$\frac{(x-x_0)^2}{a^2} + \frac{(y-y_0)^2}{b^2} - \frac{(z-z_0)^2}{c^2} = 0$$

Figure 1 shows a solar eclipse. Since we know the radii of the Sun and Moon and the distance between their centers, we can solve for the angle alpha of the cone.

$$\tan \alpha = \frac{R_{\text{Sun}} - R_{\text{Moon}}}{d_{\text{Sun-Moon}}} \approx 4.5972 \times 10^{-3}$$

We can find the distance from the cone vertex to the Moon by (Figure 1):

$$d_{\text{Sun-Moon}} = d_{\text{Sun-Earth}} \sin \alpha = \left(\frac{R_{\text{Earth}}}{\tan \alpha} \right) = 234,710.7 \text{ miles}$$

Next, using Figure 2 as an example, we can see that the center of the Earth is not collinear with the Sun and the Moon. Thus, our equation for the shadow of the cone becomes:

$$x = 217.52 \sqrt{27777} = 6815.7 \text{ miles}$$

This cone produces an ellipse with the formula:

$$\frac{100x^2}{97947} + \frac{1000y^2}{1660093} = 1$$

Using the azimuth angle of the Sun and the angle of the eclipse path, we can find the correct orientation of the ellipse and find its path width. Comparing with NASA's approximations with an ellipsoid, Wyoming of 68.04 miles to our 68.63 miles, we get an error of 0.9%.

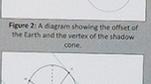
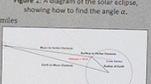
Using ArcMap, we can find the distances from the microcontrollers to the center path of the ellipse, which then yields us their respective chord lengths (Figure 4).

Each microcontroller measured the time it took the shadow to pass. The speed of the shadow can then be determined from:

$$\text{shadow speed} = \frac{\text{chord length}}{\text{time}}$$

Average Speed = 1.660 mph

With a spread of no more than ±2.5%, our average speed of 1.660 mph was within ±2% of given NASA and other astronomical website data.



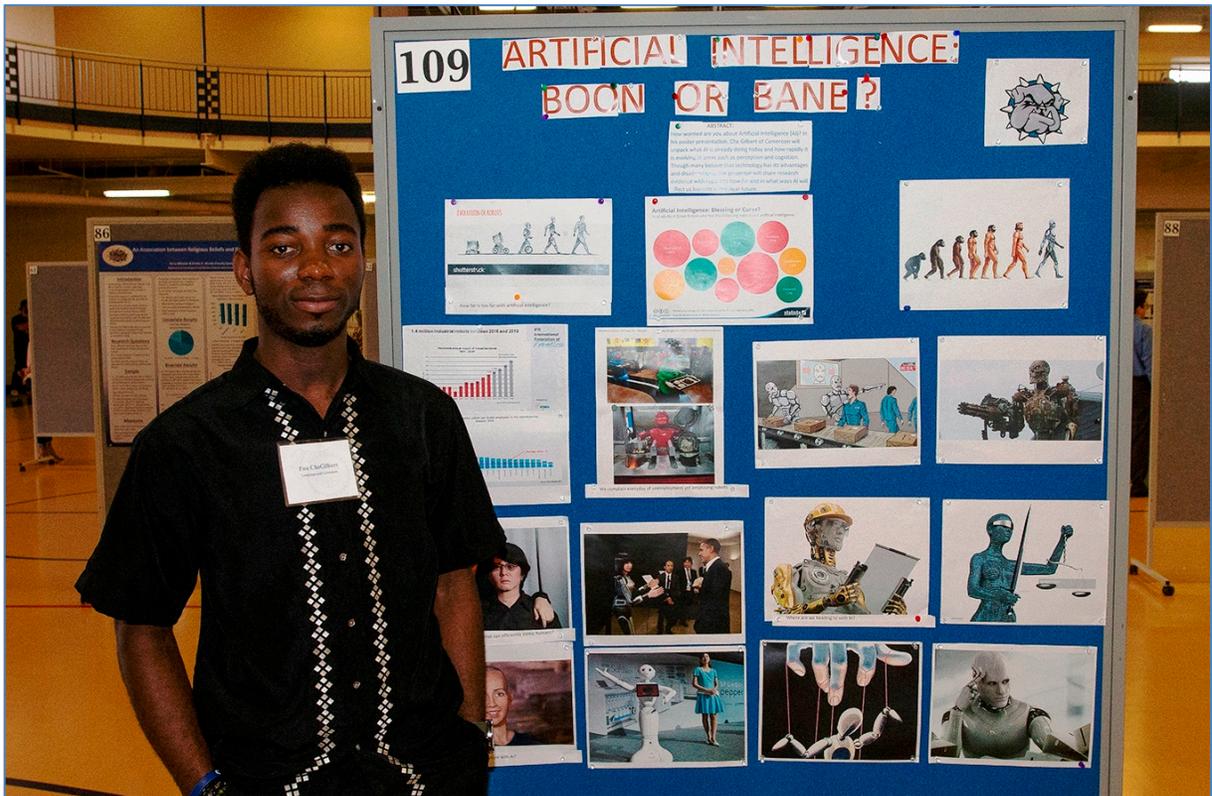
RESULTS

For the total solar eclipse in 2017, using sophisticated microcontrollers, we calculated the size of the 0.9% error of NASA, the speed of the shadow (to NASA), and got the approximate shape of the shadow the United States.

ON-GOING WORK

Other projects have been inspired by this, including astrophotography. Since the eclipse, we have also become familiar with our microcontrollers and are using them in research projects.

Student Jaxon Taylor



Student Fnu CheGilbert

Scholarly and Academic Activity

The Office of Sponsored Programs has been notified of the following Scholarly and Academic Activities since the last newsletter:



Dennis Thompson, Pharmaceutical Sciences, reviewed the following abstracts for the American College of Clinical Pharmacy Annual Meeting, 2018 in Weatherford, Oklahoma.

- Prevalence of Potential Major Drug Interactions in Ambulatory Care Setting;
- The Role of Pharmacists in the Treatment of Direct Acting Antiviral Agents of Hepatitis C;
- Analysis of risk Factors for serotonin induced serotonin syndrome;
- Evaluation of trastuzumab's cardiotoxicity in the treatment on HER2 positive cancer patients;
- Prevalence of potential Drug-Drug Interactions in Cardiothoracic Intensive Care Units of a teaching hospital in Xi'an, China;
- Overriding High Priority Drug-Drug Interaction Alerts in a Newly Implemented Commercial Computerized Provider Order Entry System: Override Appropriateness and Adverse Drug Events;
- The Impact of an Electronic Best Practice Alert to Prevent Iatrogenic Hyperkalemia;
- A drug-drug interaction study evaluating the effect of multiple doses of ranitidine administered once daily or staggered twice daily on the pharmacokinetics and safety of neratinib in healthy subjects;
- Risk Factors Associated with Adverse Drug Reactions among Critically Ill Pediatric Patients;
- Preference and adherence to once –monthly versus once weekly bisphosphonates in patients with osteoporosis: A systematic review and meta-analysis;
- The effect of sulfonylureas with concomitant antimicrobials on hypoglycemia in patients with type 2 diabetes mellitus;
- Risk of adverse events with long-term phenazopyridine use for radiation cystitis; and
- Management of dipeptidyl peptidase-4 inhibitor-associated angioedema in type 2 diabetes patients: A systematic review.

Dr. Thompson also reviewed the article titled, “A Review of the Clinical Toxicology of Yew Poisoning,” for the *Annals of Pharmacotherapy* in Weatherford, Oklahoma. He also presented his posters, “Publication Records and Bibliometric Indices of Canadian and U.S. Pharmacy Deans” and “Bibliometric Analysis of Pharmacology Publications: A State-by-State Evaluation,” at the American Association of Colleges of Pharmacy Annual Meeting 2018 in Boston, Massachusetts.



Veronica McGowan, Center for Excellence in Teaching and Learning, recently presented “Proposal Submitted,” at the Speaker Series at Faculty Resource Center at Southern Nazarene University in Bethany, Oklahoma.

Scholarly and Academic Activity (cont'd)



Dr. Jeremy Evert, Business and Computer Sciences, **Mr. Phillip Fitzsimmons**, SWOSU Libraries, and **Hector Lucas**, student, recently presented “Library Awesome Sauce Undergraduate Research” at the 2018 Coalition for Advancing Digital Research & Education (CADRE) Conference in Weatherford, Oklahoma.



Barry Gales, Pharmacy Practice, recently spoke about “Statistics Review” as a guest speaker for the Great Plains Family Medicine Residency Program in Oklahoma City, Oklahoma. Dr. Gales also reviewed the article, “Analysis of knowledge evaluation tools for pediatric asthma patients participating in an education program,” for the *Annals of Pharmacotherapy* in Oklahoma City, Oklahoma.



Phillip Fitzsimmons, Al Harris Library, published his book review in *Mythlore: A Journal of J.R.R. Tolkien, C.S. Lewis, Charles William (132) 36.2, Spring Summer 2018*, in Weatherford, Oklahoma. Mr. Fitzsimmons also recently presented his poster, “History Mysteries,” at the Oklahoma Library Association Annual Conference in Weatherford, Oklahoma. Mr. Fitzsimmons also published his book review of *Deeper Magic: The Theology Behind the Writings of C.S. Lewis* by Donald T. Williams to *Mythprint: Quarterly Bulletin of the Mythopoeic Society* Vol. 55 NO. 2 Summer 2018 Whole NO. 385 in Weatherford, Oklahoma. He also presented his paper, “Sometimes More is More: Mythlore and the SWOSU Digital Commons,” at Mythcon 49 in Atlanta, Georgia.



April Miller, Oscar McMahan Library, presented her poster, “History Mysteries,” at the Oklahoma Library Association Annual Conference in Weatherford, Oklahoma. She also presented her poster, “Battle of Washita: SWOSU Libraries Honors 150th Anniversary,” at the Oklahoma Library Association Annual Conference in Tulsa, Oklahoma. Ms. Miller also presented, “Using the Library for Recruitment and Retention,” at a workshop at the Oklahoma Library Association Annual Conference in Tulsa, Oklahoma. She was elected as Secretary by the Oklahoma Library Association – University and Colleges Division in Norman, Oklahoma. Ms. Miller was appointed to the OU-SLIS Alumni Advisory Executive Board in Norman, Oklahoma. She was also appointed to the Grey House/Salem Press/ HW Wilson Editorial Advisory Board. Ms. Miller was appointed to chair the OU-SLIS Outstanding Alumni Award Committee in Norman, Oklahoma.



Marc DiPaolo, Language and Literature, recently published his book, “Working-Class Comic Book Heroes,” through the University Press of Mississippi in Weatherford, Oklahoma.



Victoria Gaydosik, Language and Literature, recently presented her paper, “Was Faramir Galdalf’s Chosen Ring Bearer?,” at the OCU Honors Program Conference on the Inklings: Myth and Magic Across Time in Oklahoma City, Oklahoma.

Scholarly and Academic Activity (cont'd)



Kendra Brown, SWOSU Police, presented her paper, “Community Policing,” at the Oklahoma Criminal Justice Association in Edmond, Oklahoma.



Randall Sharp, Pharmacy Practice, published his review of the article, “Comparing the Impact of Prescription Omega-3 Fatty Acid Products on Low Density Lipoprotein Cholesterol,” in *The American Journal of Cardiovascular Drugs* in Oklahoma City, Oklahoma.



Edna Patatianian, Pharmacy Practice, reviewed a number of articles for the American Association of Colleges of Pharmacy (AACP) in Oklahoma City:

- “Challenges for Pharmacy Schools in Nigeria in Establishing a PharmD Degree Curriculum,”;
- “Assessing Student Ability to Compound Accurate Nonsterile Preparations in Three Laboratory Structures,”;
- “An International Collaboration on Sustainable Workforce Development and Implementation of a Doctor of Pharmacy Program”;
- Skills Lab Curriculum Impact on Student Confidence to Navigate Health Records and Present Patients.”; and
- Trends in Educational Research in Pharmacy Experiential Education in USA: A literature Evaluation Study.”

Dr. Patatianian served as a guest speaker, presenting, “A Review of Bisphosphonates and Statins,” to the Mercy Better Breathers Group in Oklahoma City, Oklahoma. She also facilitated the “Women Networking Session” workshop at the American Society of Health-System Pharmacists (ASHP) Summer Meeting in Denver, Colorado. While in Denver, Dr. Patatianian was appointed as the State Delegate at the ASHP Summer Meeting. She Moderated the Introductory Pharmacy Practice Experience Program (IPPE) Discussion Board for IPPE/Pharm3213 in Oklahoma City, Oklahoma. She reviewed the article, “What medications and Factors are Associated with Polypharmacy?: A Cohort Study,” for Hospital Pharmacy Journal in Oklahoma City, Oklahoma. Dr. Patatianian also reviewed the article, “Drug Induced Restless Legs Syndrome,” for the Annals of Pharmacotherapy in Oklahoma City, Oklahoma.



Mark Gales, Pharmacy Practice, recently reviewed the article, “PFA-100 measured aspirin resistance in increased with renal function decreased but not associated with cardiovascular hospitalization in severely renal function decreased: A 5-year cohort study,” for *The Annals of Pharmacotherapy* in Edmond, Oklahoma. He also presented his poster, “Pharmacy College Admission Test Utilization and Minimum Composite Scores in U.S. Doctor of Pharmacy Program Admissions 2016 to 2018,” at the American Association of Colleges of Pharmacy 2018 Annual Meeting Poster Session in Boston, Massachusetts.

Scholarly and Academic Activity (cont'd)



Regina McGrane, Biological Sciences, presented the following posters at the Beta Beta Beta South Central Regional Convention in Cedar Hills, Texas:

- Ice Nucleation: A look at evolutionary significance beyond frost injury;
- Investigating the effects of varying surface conditions on phytopathogens;
- Looking beyond the leaf: Understanding the impacts of motility on *Pseudomonas syringae* seed colonization;
- Rhizobacteria promote plant-growth in winter wheat in Oklahoma Soil;
- Understanding *Pseudomonas syringae* repulsion of competitors in the phyllosphere; and
- Motility of *Pseudomonas syringae* pv. *Syringae* B728a as means of colonization of above ground plant tissues.

Dr. McGrane also reviewed the article, “Quorum sensing inhibitor potential of trans-anethole against *Pseudomonas aeruginosa*,” for the *Journal of Applied Microbiology* in Weatherford, Oklahoma.



Jeremy Johnson, Pharmacy Practice, reviewed the following articles for the journal, *Diabetes Spectrum*, in Tulsa, Oklahoma:

- “Health Literacy, Clinical Outcomes and Physician Advised”;
- “Comparison of usability, accuracy, preference, and satisfaction between three once weekly GLP-1 receptor agonist pen devices,”; and
- “Case Study: Amlodipine-Induced Hyperglycemia.”

Dr. Johnson presented his poster, “Diabetic Eye Exams: Patient Knowledge, Perceptions, and Barriers to Adherence,” at the 2017 ASHP Midyear Clinical Meeting in Orlando, Florida. He also reviewed “In adults over the age of 18 with prediabetes, does the addition of metformin reduce the risk of developing microvascular and macrovascular complications?” for the Oklahoma State Medical Proceedings in Tulsa, Oklahoma. Dr. Johnson published his chapter, “Thromboembolic Disorders,” in *Ambulatory Care Self-Assessment Program, 2018 Book 1*. Dr. Johnson published his journal article, “Pharmacist-managed Short-Acting Beta Agonist Refill Service in a General Pediatric Clinic,” to the *Journal of the American Pharmacists* in Tulsa, Oklahoma. He also published his journal article, “The role of basal insulin and GLP1-agonist combination products in the management of type-2 diabetes,” in the journal, *Therapeutic Advances in Endocrinology and Metabolism*.



SCHOLARLY AND ACADEMIC ACTIVITY

Faculty are encouraged to report work, such as publications, speeches, honors, conference participation or facilitation, appointments, reviews, exhibitions, poster presentations, and other such activities. The annual scholarly and academic activity report is distributed to university and state officials and acts as an archive of such activities at SWOSU. The Office of Sponsored Programs also forwards submissions to the SWOSU Libraries digital repository. Information pertaining to the author's activity will not be placed in the library's digital repository without the consent of the author. The report form is available at [SWOSU Scholarly Activity and Research](#).

Grants, Contracts, and Proposals

AWARDS



Appeddu, Lisa, Jorie Edwards, Cindi Albrightson, and Lori Gwyn. College of Pharmacy, Department of Psychology, Department of Computer Science and Engineering Technology, and Department of Chemistry:

SAGE STEAM Camp. City of Weatherford, Hotel/Motel Tax Commission. \$5,100; and

SAGE STEAM Camp. OK-INBRE. \$5,000.



Tirk, Richard. Department of Music. *49th Annual SWOSU Jazz Festival.* Oklahoma Arts Council. \$3,580.

SUBMITTED



Henderson, Aimee. College of Pharmacy. *Increasing Access to Diabetes Self-Management Education Services for Adults in Rural Areas through Community Pharmacies.* Community Pharmacy Foundation. \$38,000.



Misak, Doug. Business Enterprise Center. *SWOSU BEC University Center.* U.S. Economic Development Administration. \$500,000.

GRANTS, CONTRACTS AND PROPOSALS

Faculty interested in pursuing grant opportunities can contact the Office of Sponsored Programs about conducting a fund opportunity search. The process can be started by completing the Research/Scholarly Activity Interest Profile at the Office of Sponsored Programs website at [SWOSU OSP](#).

Funding Opportunities

Deadline Date(s): Optional pre-application counseling periods are January 1 through February 15 and July 1 through August 15, annually. Phase I applications are due May 1 and November 1, annually. Invited Phase II proposals are due February 15 and August 15, annually.

Funding Agency: W.M. Keck Foundation

Program Title: Undergraduate Education Program

Web site: [W.M. Keck Foundation](#)

Synopsis: The W. M. Keck Foundation's Undergraduate Education Program promotes distinctive learning and research experiences in science, engineering, and the liberal arts at four-year undergraduate colleges in foundation-designated states or through national organizations that address undergraduate needs.

Funding Range: Awards range from \$200,000 to \$1 million, with an average award less than \$500,000.

Deadline Date(s): Applications are accepted year-round

Funding Agency: Guitar Center

Program Title: Music Education Grants

Web site: [Guitar Center](#)

Synopsis: The Guitar Center offers grants that support music education projects and programs. The company believes that music inspires creativity and personal expression, builds self-esteem, and teaches cooperation and team building from playing music together.

Funding Range: Awards Vary.

Deadline Date(s): December 1 through February 28 and July 1 through September 20 annually

Funding Agency: Proctor and Gamble Fund

Program Title: U.S. Higher Education Grant

Web site: [Proctor and Gamble Grant Application](#)

Synopsis: The Procter and Gamble (P&G) Fund awards U.S. Higher Education Grants to support college curriculum programs intended to better prepare students within the areas of study most pertinent to P&G, and similar employers, for success

in business. Examples include improving curriculum to be at the cutting edge in relevance and effectiveness, fostering and enabling leadership opportunities and learning, creating a learning environment that encourages and enhances innovation and creativity, and strengthening diversity. Eligible applicants must be accredited two- and four-year colleges and universities in the United States.

Funding Range: Awards range from \$5,000 to \$10,000, with each college or university limited to \$50,000 per year.

Deadline Date(s): Applications are accepted on a rolling basis.

Funding Agency: SC Johnson

Program Title: Education Grants

Website: [SC Johnson](#)

Synopsis SC Johnson supports institutions that serve or directly impact communities where it has major

operations. However, it also supports requests that are regional or national in scope. The foundation makes grants in the areas of arts, culture, and humanities; community and economic development; education; health and wellness; social services; and environment and sustainability. Education Grants include support for programs that emphasize student academic achievement, with a focus on academic enrichment and advancement, early childhood, and kindergarten through grade 12 education; postsecondary institutions; and technical and vocational schools.

Eligible applicants must have 501(c)(3) nonprofit status or be a government entity, such as a school, library, or public agency. Applications must be submitted online.

Funding Range: Awards Vary.

Deadline Date(s): Applications are accepted year-round

Funding Agency: Oriental Trading Company

Program Title: Education Grants

Web site: [Oriental Trading](#)

Funding Opportunities (cont'd)

Synopsis: The Oriental Trading Company makes grants in the areas of education, youth, health care, and human services. Preference is given to programs that serve to improve the lives of children and youth, with an emphasis on education and youth programs dedicated to improving or providing health care and human services.

Eligible applicants are nonprofit 501(c)(3) organizations, public kindergarten through grade 12 schools, and public colleges or universities.

Applications must be submitted online.

Funding Range: Awards Vary.

Deadline Date(s): Applications are accepted year-round

Funding Agency: The Hearst Foundations

Program Title: The Hearst Foundations Education Grants

Web site: [The Hearst Foundations](http://TheHearstFoundations.com)

Synopsis: The Hearst Foundations support well-established nonprofit organizations in education, health, culture, and social service. The foundations have a particular interest in addressing the needs of low-income populations. Within education, the foundations generally provide program, scholarship, capital, and on a limited basis, endowment support. They fund educational institutions demonstrating uncommon success in preparing students to thrive in a global society. The focus is largely on higher education.

Preference is given to professional development for faculty; higher education scholarships and, on a limited basis, scholarships for postgraduate education. However, innovative models of early childhood and kindergarten through grade 12 education are also funded.

Funding Range: Awards Vary

Upcoming Events

SWOSU 26th Annual Student Research and Scholarly Activity Fair

Date: Thursday, November 15, 2018

Location: SWOSU Wellness Center

Time: 12:00 to 3:00 p.m.

Promoting Undergraduate Research Conference

Date: Friday, September 28, 2018

Time: 10:00 a.m. to 5:30 p.m.

Conceptual Description:

Virtual Communities of Undergraduate Research and Scholarly Activities: A day of live and virtual interaction in which several faculty members will share their expertise and experience in undergraduate research from 3 states, and 3 time zones, via ZOOM platform via OSRHE. One student panel will share from several locations at one time. There will be 5 live locations: **OU Norman, UCO Edmond, NSU Tahlequah, CU Boulder, Harford Community College, Bel Air MD**, and keynote speaker, Ashley Finley, Ph.D., from Washington, DC. Anyone who wants to connect but not go to one of the live locations can do so. We hope to get hundreds of participants. Presentations will be made from Colorado, Maryland and Oklahoma.

Upcoming Events (cont'd)

Oklahoma Research Day

Date: Friday, March 8, 2019

Location: Registration and Luncheon: SWOSU Pioneer Cellular Event Center and Poster Presentations: SWOSU Wellness Center

Time: 8:00 a.m. to 3:00 p.m.

Registration will open in late Fall. We will forward details as they become available.

The SWOSU Office of Sponsored Programs is proud to welcome Dr. Lori Gwyn as the new Director. Dr. Gwyn served in the Office of Sponsored Programs from 2010-2012, she then worked in the SWOSU Department of Chemistry and Physics for 6 years as a professor of biochemistry. Dr. Gwyn received her B.S. in Chemistry from SWOSU in 1999 and an M.S. and Ph.D. in Chemistry from the University of Missouri St. Louis in 2005. She was an NIH Postdoctoral Fellow at the University of Oklahoma Health Sciences Center from 2005-2009. Dr. Gwyn has a clear vision for the future of the Office of Sponsored Programs and will greatly benefit SWOSU in this position.

OFFICE OF SPONSORED PROGRAMS STAFF

Dr. Lori Gwyn, Director

Lori.gwyn@swosu.edu

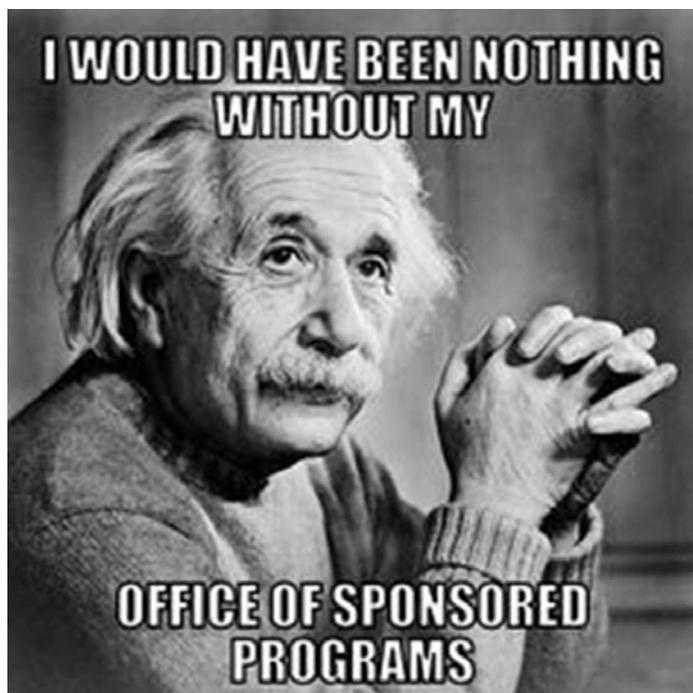
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Welcome Back!

We hope you have a great semester!