

ADVANCE: WISE@OU NEWSLETTER

WOMEN IN SCIENCE AND ENGINEERING AT OAKLAND UNIVERSITY
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JANUARY 2016

CETL Workshops with WISE@OU

Supporting Students to Be Successful in STEM Courses

Guest panelist Anna Spagnuolo (Mathematics & Statistics) joined WISE@OU Leadership Team member Kathy Moore in a discussion of strategies to support students to be successful in STEM courses. She addressed her activities for the beginning of the semester, along with how she uses her course website and Moodle. She also shared her tips for classroom teaching and utilizing office hours most effectively. Her full presentation can be seen in the workshop video on the [OU Resources](#) webpage.



Balancing Teaching and Research in STEM

WISE@OU was pleased to have Ferman Chavez (Chemistry) and Jia Li (Electrical & Computer Engineering) share their tips for balancing research and teaching schedules as a STEM faculty member. This discussion was facilitated by WISE@OU Leadership Team member Laila Guessous. See the workshop on the [OU Resources](#) page.

Photos: (right) Anna Spagnuolo; (above): Ferman Chavez and Jia Li

Welcome to New STEM Faculty



Luis G. Villa-Diaz
Biological Sciences

Luis G. Villa-Diaz studies the self-renewal properties of human pluripotent stem cells, focusing on the role that integrin transmembrane receptors play in this process. He has shown that the chemical, physical, and mechanical properties of the microenvironment can determine the fate of stem cells. His lab will focus on investigating the function of integrins in human pluripotent stem cells as an *in vitro* model for other stem cell populations. Luis was a research investigator at the University of Michigan before coming to OU.

Upcoming Workshops and Events

What can feminist philosophy of science offer feminist criticisms of neuroscience?

The Philosophy Department, with support from the Women and Gender Studies (WGS) program, Center for Biomedical Research, and WISE@OU invites you to attend a presentation by Robyn Bluhm from Michigan State University. The topic is “What can feminist philosophy of science offer feminist criticisms of neuroscience?” and the event takes place on **Friday, January 22** at 4 p.m. in 168 MSC.

Please join members of WISE@OU for the following CETL workshops:

Models for Faculty Mentoring—Thursday, January 28

This panel will present a framework for mentoring and explore examples of mentoring across campus.

Work-Life Balance: Managing Your Service Commitments—Thursday, April 7

Panelists will discuss the importance of the service role, how to know when to say “yes” or “no” to commitments, and the importance of chair leadership.

Workshops are held in 200A Elliott Hall from noon til 1:30 p.m. Lunch is provided. Register for these events on the [CETL website](#).

Workshop on Broader Impacts Criteria

Date: Friday, March 4, 2016, noon til 1:30 p.m.

WISE@OU with support from the Office of Research Administration presents the Workshop on Broader Impacts Criteria for NSF (and other federal) grants. Learn how to make this critical component a meaningful experience and improve your chances for external funding. Registration will open soon.

Inside this Issue:

Young Investigator Award Opportunities

NSF Grants Events

NIH Early Career Reviewer Program

Recent Grants at OU

Young Investigator Award Opportunities

The Office of Research Administration assisted WISE@OU in preparing a list of over 40 young investigator awards from external agencies. Visit the “Helpful Documents” section on the [OU Resources](#) webpage for the full list, including due dates, descriptions, and web links. These awards include:

- American Heart Association Scientist Development Grant
- HFSP Research Grants—Young Investigators Grants
- Air Force Young Investigator Research Program
- Office of Naval Research, Science & Technology Young Investigator Program
- American Chemical Society Doctoral New Investigator Grant
- Research Corporation Cottrell Scholars Award
- American Federation for Aging Research Grant for Junior Faculty
- Camille and Henry Dreyfus Foundation Teacher-Scholar Award
- Sloan Research Fellowship
- AAAS Martin and Rose Watchel Cancer Research Award
- Society of Photo-Optical Instrumentation Engineers Early Career Achievement Award
- National Science Foundation Faculty Early Career Development Program (CAREER)

NSF Grants Conference and Other Events

The **NSF Grants Conference** is one of the best ways to gain information about STEM grants. The next conference will be held **February 29 - March 1, 2016**, in Portland, Oregon, and will be hosted by Portland State University. Visit the NSF Grants Conference Notification [website](#) to be placed on the mailing list for the Portland event, as well as for future conferences. In addition, to receive conference and other NSF updates, register for NSF's free email subscription service by selecting "Get Events Updates by Email" on the NSF events [webpage](#).

To view webcasts of the 2015 NSF Grants Conference, visit: <http://www.tvworldwide.com/events/nsf/151102/>. Registration is required but viewing is free. Webcast sessions include information on proposal preparation, the merit review process, award management, and the Faculty Early Career Development (CAREER) Program.

Another upcoming event is the **2016 NSF CAREER Proposal Writing Workshop** on **March 21 -22, 2016** in St. Louis, Missouri. This workshop is sponsored by NSF Division of Civil, Mechanical and Manufacturing Innovation. Find more information at: <http://aries.imse.ksu.edu/nsf/NSF2016/main.htm>.

If you are interested in attending these events, please also contact Brad Roth (roth@oakland.edu) or Laila Guessous (guessous@oakland.edu). Travel support funding may be available.

NIH Early Career Reviewer Program

What is the best way to learn how to write grant proposals? Review grant proposals! The National Institutes of Health (NIH) has an **Early Career Reviewer program** to give young researchers a chance to get experience reviewing. You can learn more, and sign up for the program, at: <http://public.csr.nih.gov/ReviewerResources/BecomeAReviewer/ECR/Pages/default.aspx>. The benefits of the Early Career Reviewer Program include:

- Working side-by-side with some of the most accomplished researchers in your field to help NIH identify the most promising grant applications
- Learning how reviewers determine overall impact scores
- Improving your own grant writing skills by getting an insider's view of how grant applications are evaluated
- Serving the scientific community by participating in NIH peer review

For more information about reviewing grants, contact Brad Roth (roth@oakland.edu).

Recent Grants for STEM Faculty

WISE@OU is excited to highlight recent grants, focusing on the research of our STEM faculty.

Biological Sciences



Scott Tieg – Ecuadorian National Science Foundation, \$40,000

Tieg lived and worked in Quito, Ecuador from February to August 2015 while funded by this grant. The project, titled “Organic-Matter Decomposition in Streams: Standard Methods for Broader Synthesis,” involves quantifying organic matter decomposition rates in a large number of streams across the globe. His research spans 50 different countries to better understand human impacts to stream ecosystems. More of Tieg’s research was recently covered in the [News at OU](#).

Chemistry



Ferman Chavez – National Institutes of Health, \$334,186

Chavez’s project is titled “Mechanistic Studies on Bioremediation Metalloenzymes.” The goals for the research are to design and make molecules that reproduce the structure and reactivity of bioremediation enzyme active sites in order to understand how they are able to decompose environmental contaminants. Catalysts developed in this work may be able to convert crude organic compounds (i.e. oil) into precursors for more useful products such as pharmaceuticals, flavors, and fragrances. The project is funded through August 2018. Find more information on the [NIH website](#).

Physics



David Garfinkle – National Science Foundation, \$140,297

This project involves studying Einstein’s general theory of relativity using a variety of mathematical and computer methods to understand gravitational collapse, the interiors of black holes, and the gravity waves that are produced by colliding black holes and supernova explosions. The project is titled “Studies of singularities, black holes and gravitational radiation,” and is funded through May 2018. Find out more on the [NSF website](#).

Mechanical Engineering



Xia Wang – National Science Foundation, \$575,979

This collaborative project involves PI **Xia Wang**, Co-PI **Chris Kobus**, and 13 other faculty members from the School of Education and ME, ECE, and ISE departments, including WISE@OU Leadership Team member **Laila Guessous**. The “Research Experience for Teachers in Alternative Energy and Automotive Engineering (AEAE): Energizing K-12 Teaching and Learning” project is funded by the NSF through September 2018. The team will bring in 12 STEM teachers from local high schools, middle schools, and universities to conduct cutting-edge research on alternative energy and automotive engineering for 6 weeks during the summer. There is strong support for this project from General Motors, Chrysler, and BASF, as well as local school districts including Oak Park, Pontiac, Rochester, and Birmingham. Find more information on the [NSF website](#).

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Computer Science and Engineering



Laura Dinsmoor – National Center for Women & Information Technology, \$8,000
The NCWIT Extension Services for Undergraduate Programs (ES-UP) provides customized consultation to undergraduate departments of computing to help them develop high-impact strategies for recruiting and retaining more women students. With other SECS faculty, Dinsmoore developed two different programs to work on in Winter 2016, with the plan to implement them in summer and fall of 2016. Find out more on the [NCWIT website](#).



Khalid Mahmood – Sorrento Partners, \$15,500; and UREC LLC (Industry Grant), \$37,000
Mahmood is PI on the project “Semantic Based Speech Tagging for Video Analytics,” working with Co-PI Khalid Mirza (Sorrento Partners). The aim is to enable the internet to understand semantics of natural language (e.g. English) and infer the knowledge by semantically interpreting web pages, videos, and voice commands.
The “Bolted Joint Design, Analysis, Development, and Validation” project (Industry Grant) mainly focuses on analysis and validation of Bolted Joint design and development of the BoltVibe App (emulator). The Boltvibe app calculates whether (or not) a tightened threaded fastener system would loosen under in-service vibration forces. The trial version of app was used by ME seniors at OU, and is the app now available for android phone/tablet and iPhone/iPad.



Tao Shu – National Science Foundation, \$232,476
This project is titled: “NeTS: Small: Collaborative Research: Network Economics for Secondary Spectrum Ecosystems.” In the wireless service business, a provider with cognitive radio (CR) capabilities can acquire spectrum on demand from the secondary spectrum market to avoid paying the huge spectrum licensing fees, significantly lowering the threshold of entry to the wireless business. This project will investigate a novel competition-and-collaboration spectrum market framework, whereby small and local secondary wireless service providers (SSPs) will collaborate in providing service to retain more market share, better profitability, stronger market competitiveness, and higher market efficiency. This project will advance our understanding of the network economics for the secondary spectrum ecosystem, and will contribute to the real-world deployment of a economically feasible and sustainable spectrum market. Find more information on the [NSF website](#).



Yonghong Yan – National Science Foundation, \$250,000
This collaborative project, “SHF: Small: Collaborative Research: Application-aware Energy Modeling and Power Management for Parallel and High Performance Computing,” integrates development, education, and outreach efforts to have a substantial impact on both the high performance computing (HPC) research community and hardware designers and vendors. This work addresses the need for energy efficiency improvements in large-scale systems in support of high-end simulations used to design pharmaceuticals, aircraft, global warming scenarios, etc. The proposed techniques influence the design of future directions of HPC and enterprise computing systems from industry and government. This project is funded through August 2017. Find out more on the [NSF website](#).