EAPS WEEKLY NEWSLETTER
19 Feb. 2018 | EAPS on Facebook | EAPS on Twitter

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DEPARTMENT NEWS

INSIDE EAPS NEWSLETTER
Read all of the latest news in our department magazine, Inside EAPS, including Antarctica research, public outreach, and clean energy for hybrid vehicles. The latest version of Inside EAPS newsletter can be found here: https://goo.gl/47U9vP

BE SURE TO CHECK OUT ALL OF THE EAPS COMMUNICATIONS MEDIA!

Facebook
Twitter
Department Magazine
Website News

EAPS COLLOQUIA

Michael Eddy
Geochronology faculty candidate
Princeton University
Feb. 22, 2018
3:30 PM
HAMP 1252

EAPS MEETINGS & EVENTS

EAPS FACULTY MEETINGS
Mar. 6, 2018
Mar. 27, 2018
3:00-4:30 PM
HAMP 3201

CoS FACULTY MEETINGS
April 17, 2018
3:30-4:30 PM
TBD

EAPS PRIMARY COMMITTEE MEETING
Apr. 3, 2018
3:00-5:00 PM
HAMP 3201

EAPS AWARDS BANQUET
Apr. 23, 2018
5:30 - 9:00 PM
Buchanon Club, Ross-Ade Pavilion

EAPS ALUMNI ADVISORY BOARD MEETING
Apr. 24, 2018
8:30 AM - 4:30 PM
HAMP 2201

http://www.eaps.purdue.edu/
MS DEFENSES

Patrick Saunders
March 27, 2018
9:00 AM
HAMP 4173

Kevin Burris
March 29, 2018
8:00 AM
HAMP 2107

REGISTRATION APPOINTMENTS

As a reminder – Please log into Boiler Connect to make a registration appointment for Fall 2018 courses.

SUMMER FELLOWSHIP (PAID!) OPPORTUNITY AT VIRGINIA TECH
https://vtconfluence-reeu.weebly.com/

Announcing their new USDA-funded research & extension experiences for undergraduates (reeu), training future leaders to solve resource challenges at the confluence of water and society.

STAR

As the summer and warmer weather quickly approach, Orientation Programs is beginning the search for our STAR Ambassadors. We are seeking well-informed and resourceful undergraduate students who are reliable, proactive, and customer-oriented, with a proven willingness to help new students and families. We are hiring both full-time and part-time staff members ($9/hr.) in order to accommodate students who are taking summer classes. The callouts for the position are on February 26th and 27th at 6pm in PHYS 203 (see attached flyer and job description for additional details).

The application will open on Wednesday, February 28th at 12pm and will close on Sunday, March 18th at 11:59p.m. Application information can be found at: http://www.purdue.edu/orientation/star/ambassadors.html

MAXIMIZE YOUR SUMMER

The Purdue Science Student Council

Interested in finding a summer internship or research opportunity? Come and hear distinguished students talk about their research and internship experiences and how to obtain one yourself.

There will be FREE CHEEZY BREAD!
Where: Lily 3118
When: Feb. 19, 6-7 PM

PAID SUMMER INTERNSHIP IN INDIANAPOLIS!

Project transformation Indiana is a nonprofit looking to hire college students for their paid summer internship in Indianapolis. This opportunity provides a stipend, housing, and most meals during the summer! The internship involves working in a team to run a summer camp for elementary-age students in low-income communities. The day camp includes a variety of enrichment activities for the children with a focus on literacy, including daily reading with volunteers to address the summer slide. On Fridays, instead of camp for the elementary kids, interns get to tour nonprofit, ministry, and service settings around Indianapolis to explore their calling. During the summer, interns live in community together eating meals, hanging out, and having a weekly worship service together. This internship is a full-time commitment from May 29th until August 4th in Indianapolis. This is more than just a summer job; it is an opportunity to enter into new relationships, explore your calling, engage in a summer of service, and hopefully experience transformation! This internship is open to students of all majors and is an especially ideal opportunity for those interested in education, nonprofits, ministry, and service.

Please consider applying to spend your summer with Project Transformation Indiana! If you have

http://www.eaps.purdue.edu/
questions or need to know more, email
galloway@ptindiana.org

They are already accepting applications and interviewing for summer 2018! Here is the website to find out more information and find the application for the summer
https://projecttransformation.org/indiana/

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CALLING ALL GRADUATE STUDENTS AND EARLY CAREER SCIENTISTS!

The second ARM Summer Training and Science Applications event on observations and modeling of clouds and precipitation will take place July 14 to 21, 2018. The training will be held at the National Weather Center in Norman, Oklahoma.

Deadline to apply is March 30, 2018.

Sponsored by the ARM Climate Research Facility to support the next generation of atmospheric scientists, this training will cater to graduate students and early career scientists (within four years of receiving their PhD) who are interested in observations and modeling of aerosols and cloud and precipitation processes.

The summer training will provide theoretical and practical instruction on the application of ground-based observations from a wide array of active and passive sensors and will encourage innovative methods for using ARM facilities to address complex scientific inquiries.

Submit your application (i.e., a one-page motivation letter, one recommendation letter, and curriculum vitae [CV]) in a single PDF to Sarah Fillmore at sarah.fillmore@pnnl.gov. Selected participants will have their accommodation expenses covered by the ARM Facility.

Read more about the topics that will be covered during the event: https://www.arm.gov/news/facility/post/47506

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PROJECT TRANSFORMATION INDIANA

Project Transformation Indiana is looking for college-age young adults seeking a summer of hands-on ministry with underserved children in the Indianapolis area. Applicants must have completed at least 1 year of college of be at least 19 years old before the internship begins. Apply & learn more at: www.projecttransformation.org/indiana

See attached flier for additional details.

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DISCUSSION GROUPS AT PURDUE COUNSELING AND GUIDANCE CENTER

If you are stressed about a romantic breakup, or are grieving the loss of someone important to you, the Purdue Counseling and Guidance Center (PCGC) can help. The PCGC will be offering discussion groups on each of these topics on Wednesday nights, the next being April 25th. Each night will start with a free meal from 6:00 to 6:30pm and the groups will be from 6:30 to 8:00pm.

Topics for the groups are as follows:

* Grief discussion group—opportunity for college students who have experienced the death of someone important to them to talk about their experiences with grieving during college, with an emphasis on the uniqueness of grief.

* Romantic breakup discussion group—opportunity for college students who have recently experienced a breakup to talk about their reactions and responses, with an emphasis on the losses and gains that are often connected with the ending of significant relationships.

Students interested in attending one of these groups must contact the PCGC—spaces are limited. For more information and/or to sign up, call 494-9738. Limited spaces are also available for individual counseling for general concerns. Our email address is pcgc@purdue.edu and our website is www.edst.purdue.edu/pcgc.

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PURDUE UNDERGRADUATE RESEARCH CONFERENCE—NOW ACCEPTING PAPERS & ABSTRACTS

The Purdue Undergraduate Research Conference (formerly the Purdue Undergraduate Research Symposium) is scheduled for April 10, 2018 and they
are now accepting papers and abstracts for oral presentations and posters at the conference. For the submission site and “How to” guide, visit: http://purdue.edu/undergrad-research. Please see attached flier for more details.

CROSSROADS GEOLOGY CONFERENCE
MARCH 23 & 24, 2018
INDIANA UNIVERSITY, BLOOMINGTON, INDIANA

Abstract Deadline: March 10, 2018!

The student members of the Rho chapter of Sigma Gamma Epsilon at Indiana University invite you to participate in the annual Crossroads Geology Conference at Indiana University. This conference is a student-organized event featuring research presentations by graduate and undergraduate students in the geological, atmospheric, and environmental sciences from a number of regional colleges and universities, at Indiana University in Bloomington.

For more information, please see http://www.indiana.edu/~sgeweb1/

ENTREPRENEURIAL AND THE ENVIRONMENT SUMMER SCHOOL
July 1-13, 2018

The Smith School of Enterprise and the Environment at the University of Oxford. We would like to invite students at the Purdue department for earth, atmospheric and planetary sciences to apply for our Enterprise and the Environment Summer School which will take place from 1st - 13th July 2018 in Oxford. It is a summer school intended for undergraduates, as well as recent graduates passionate about leading environmental change in business, society and government. See attached for more information.

GLOBAL SCIENCE PARTNERSHIPS LEARNING COMMUNITY

Attention: all first year college of science students! See the attached flier for information about free dinners, trips, and activities that are designed to help you learn about other cultures...while having fun!

POC: Terry Ham: hamt@purdue.edu or globalsciencepartners@purdue.edu

BOILER WELLNESS E-NEWSLETTER

Please check out the attached January Boiler Wellness E-Newsletter. In it, you will find information about upcoming Mindfulness, Resilience and Crave Series, the Lunch and Learns, and the Crockpot Meals.

2018 SUMMER RESEARCH EXPERIENCES FOR UNDERGRADUATES PROGRAM

The 2018 Summer Research Experiences for Undergraduates (REU) Program in climate change in semi-arid regions hosted by the Environmental Science Institute at the University of Texas at Austin. The program is currently in its 15th year, with 130 alumni, many of whom have presented the results of their REU research at national conferences and/or published in peer reviewed journals.

The program is aimed at rising juniors and seniors and open to students who are US citizens in good academic standing. We especially invite applications from members of traditionally underrepresented groups.

Please feel free to download the program flyer and share widely with students who may be interested in this program. Program information, including the online application, can be found on our website.

http://www.eaps.purdue.edu/
PURDUE TO ADD TWO-FACTOR AUTHENTICATION FOR ALL FACULTY AND STAFF DURING SPRING SEMESTER

Coming soon, all of Purdue’s faculty and staff will need to begin using two-factor authentication, known at Purdue as BoilerKey, to log into the new employee portal, SuccessFactors, improving security of personal and University data alike. Signup for BoilerKey is now ready for all Purdue employees at www.purdue.edu/boilerkey. Purdue faculty and staff can expect reminders to sign up in the form of direct emails, social media posts and Purdue Today articles to give instructions on how and where to sign up throughout the coming spring semester. The employee portal allows employees to create leave requests and check paystubs. It also handles many of the University’s business functions.

What is two-factor authentication?

BoilerKey adds a second login requirement to go with your password. At Purdue, it’s a numerical code randomly generated on a smartphone app called Duo or a key fob. Essentially, even if someone were to get ahold of your password (if you fall for a phishing email, for instance), your account would still be protected because only you can physically access your smartphone or key fob to get the necessary login code.

COS RESEARCH AWARDS

Please see the attached flyer for the February 20th CoS Research Awards with an abstract and bio information for each of the awardees. Please feel free to post these within departments or share with other colleagues from outside the College who might be interested in attending.

http://www.eaps.purdue.edu/
IMPORTANT NOTICE ABOUT THIS NEWSLETTER

This newsletter is used as the primary information source for current and upcoming events, announcements, awards, grant opportunities, and other happenings in our department and around campus. Active links to additional information will be provided as needed. Individual email announcements will no longer be sent unless the content is time-sensitive. We will continue to include our publications, presentations and other recent news items as well.

Those using paper copies of the newsletter should go to our newsletter archive on the EAPS website at http://www.eaps.purdue.edu/news/newsletters.html and Click on News to access active links as needed. Material for inclusion in the newsletter should be submitted to Fallon McQuern (fmcquern@purdue.edu) by 5:00pm on Thursday of each week for inclusion in the Monday issue.

If it is in the newsletter, we assume you know about it and no other reminders are needed. For answers to common technology questions and the latest updates from the EAPS Technology Support staff, please visit: http://www.eaps.purdue.edu/resources/information_technology/index.htm

Also, as an additional resource for information about departmental events, seminars, etc., see our departmental calendar at http://www.EAPS.purdue.edu/events-calendar.html
Rapid Assembly and Crystallization of a Fossil, Large-Volume, Silicic Magma Chamber: Insights into the Formation of Supervolcanoes

Michael Eddy
Princeton University

Large-volume eruptions of high-SiO$_2$ rhyolite (i.e., super-eruptions) represent the most explosive, and potentially devastating, volcanic activity on Earth. However, the timescales over which the magma bodies that source these eruptions are assembled, the state in which these bodies reside in the upper crust, and whether or not these magmas are geochemically modified by crystal-liquid separation remain vigorously debated. I will discuss the geology of a unique granitic intrusion from Washington, USA that likely represents a fossil magma chamber that is comparable in size to those that source super-eruptions. Geochronologic, geochemical, and textural information all point toward assembly and differentiation in a few 10s of k.y., much faster than the timescales typically attributed to these processes.

Thursday, February 22, 2018
3:30 pm
Room 1252, HAMP
Work in a team to lead a summer day camp program for elementary school students!
Live in Christian community with other young adults who have a passion for service!
Explore your calling through our weekly trips to discover different forms of service and ministry!
Build strong relationships with the children and other interns!
Receive a living stipend, plus room and board!

Project Transformation Indiana is looking for college-age young adults seeking a summer of hands-on ministry with underserved children in the Indianapolis area:

The mission of Project Transformation is to engage young adults in purposeful leadership and ministry, support children in holistic development, and connect churches with communities.

Applicants must have completed at least 1 year of college or be at least 19 years old before the internship begins.

Apply & learn more at: projecttransformation.org/indiana

Questions? Email galloway@ptindiana.org
STAR Ambassador Callouts

Feb 26th & 27th
6:00-7:00pm
PHYS 203

Not only does the STAR Ambassador position offer the opportunity to welcome and connect with new students and their families, but it offers both full-time and part-time paid work experience! Help us support the future generation of Boilermakers!

For more information please visit www.purdue.edu/orientation/star/ambassadors.html
Are you a proud Boilermaker that has great interpersonal skills AND free time this summer? Apply to be a STAR Ambassador! Get paid for what you do best; interact with people!

**What is STAR?**
Summer, Transition, Advising, and Registration (STAR) is a one day program, hosted by Student Success Programs, for new undergraduate students to receive academic advice, request fall courses, and conduct other important business on-campus.

**What do STAR Ambassador do?**
- Welcome new Boilermakers and their families to Purdue!
- Address questions and concerns throughout the STAR day
- Assist with student a family check in, the class preference process, and other program logistics
- Troubleshoot any problems that arise throughout the day and seek assistance whenever needed
- Have fun and gain a rewarding experience

**Qualifications:**
- Undergraduate student at Purdue with at least a 2.5 cumulative GPA before and throughout the STAR experience.
  - Note: If you are selected to be an Ambassador and you fail to maintain minimum 2.5 cumulative GPA at the end of the spring semester, you will be dismissed from your role.
- Ability and willingness to promote Purdue and the Boilermaker experience in a positive light
- Well informed about campus resources
- Reliable, responsible, mature, and willing to help new students and their families.
- Ability to take initiative and be proactive

**Job Requirements, Duties & Specifics:**
- Must be available from June 18th to July 13th 2018
  - Note: You will be free on all weekends and on July 4th and 5th
- Must be available for four required trainings on April 23rd, June 13th, June 14th, and June 15th
- Must be willing to complete other duties assigned
- Must be living in or around West Lafayette and be able to provide your own transportation to and from campus throughout the summer

**Hours/Pay:**
- As a STAR Ambassador you will be compensated at a rate of 9 dollars per hour
- As a STAR Ambassador you have the option to work full-time or part-time
  - As a full-time STAR Ambassador you must work between 30 and 40 hours per week
    - Note: In order to be a full-time STAR Ambassador you must not be enrolled in any summer classes
  - As a part-time STAR Ambassador you must work a minimum of 20 hours per week
    - Note: As a part-time STAR Ambassador you may take either morning or afternoon classes, but not both.
- If you have another on-campus job you cannot work over 40 hours a week combined, between your STAR Ambassador position and your additional role.
Note: If you are an international student and you are required to take courses during the summer then you cannot work for more than 20 hours a week.
- It is your responsibility to ensure you are within your work hour limits.
- Lunch will be provided at a dining court on campus during all STAR working days.

**Application Process:**

- The online applications will **open** on Wednesday, February 28<sup>th</sup> at 12:00pm EST and will **close** on Sunday, March 18<sup>th</sup> at 11:59p.m. EST
  - The application can be found at: [http://www.purdue.edu/orientation/star/ambassadors.html](http://www.purdue.edu/orientation/star/ambassadors.html)
- **Interview** – following the completion of your application, you will be directed to a page where you may sign up for a 20 minute interview on either March 28<sup>th</sup> or March 29<sup>th</sup>
  - These interviews will be reserved on a first come, first served basis.

* Please contact Todd Braverman (tbraverm@purdue.edu) or Sarah Pacelli (spacelli@purdue.edu) if you have any additional questions.
ORNL Science Education and Workforce Development Virtual Career Fair: February 22, 2018

All times reflect Eastern Standard Times.

12:00 PM: Virtual Career Fair opens and recruiters are LIVE to chat from 12:00-3:00 pm.

12:00-1:00 PM: Dr. Jeremy Busby, Dr. Melanie Mayes, and Julie Ezold will be LIVE in the Meet an ORNL Mentor booth to chat.

- Dr. Jeremy Busby is the Division Director for the Materials Science and Technology Division in the Physical Sciences Directorate at ORNL. His contributions range from light water reactors to sodium reactors and space reactor systems as well as research in support of the ITER project.
- Dr. Melanie Mayes is an ORNL Senior Staff Scientist and Multi-scale Environmental Processes Team Leader with the Environmental Sciences Division and the Climate Change Science Institute.
- Julie Ezold has over 25 years of experience in the nuclear sciences and is currently the Californium-252 Program Manager. She is responsible for the technical aspects as well as the program management activities of each curium target campaign.

1:00-2:00 PM: Dr. Robert Duckworth and Marie Urban will be LIVE in the Meet an ORNL Mentor booth to chat.

- Dr. Robert Duckworth is a Senior R&D Staff Member in the Fusion and Materials for Nuclear Systems Division at Oak Ridge National Laboratory.
- Marie Urban is a Staff Scientist in the Geographic Information Science and Technology Group at ORNL. She is the Principal Investigator for the Population Density Tables (PDT) project and has been for the past decade.

2:00-3:00 PM: Dr. Erin Webb and Jay Billings will be LIVE in the Meet an ORNL Mentor booth to chat.

- Dr. Erin Webb is a Senior R&D Staff Member in the Environmental Sciences Division at Oak Ridge National Laboratory and Joint Associate Professor in the Department of Biosystems Engineering and Soil Science at the University of Tennessee.
- Jay Billings is a Research Scientist in the Computer Science Research Group of the Computer Science and Mathematics Division at ORNL. His research focuses on the design and implementation of modeling and simulation tools for energy science, a large part of which has been related to the study of scientific workflows in an HPC context.

3:00 PM: Virtual Career Fair closes
ORNL Science Education & Workforce Development Virtual Career Fair

February 22
Noon-3 p.m. EST

Discover the variety of research opportunities offered at Oak Ridge National Laboratory, the Department of Energy’s largest science and energy lab!

Chat live with scientists and recruiters, explore program booths, and learn about the ORNL experience!

REGISTER TODAY!
Dor Ben Amotz  
Professor of Physical Chemistry

Water-Mediated Interactions

Water-mediated interactions play a central role in biological self-assembly, as well as medicinal, environmental, and materials chemistry. And yet, the magnitudes, and in some cases even the signs, of such interactions have not been experimentally measured. In order to do so, we use hydration-shell vibrational spectroscopy to quantify solute-induced changes in water structure and the associated size dependent crossover phenomena, as well as to measure the free energy driving forces that lead to the water-mediated aggregation and self-assembly of oily, polar, and ionic molecules.

Bio: Dor Ben-Amotz was born in Jerusalem, grew up in Berkeley, earned a bachelors degree from Bennington College, and a PhD from UC Berkeley, before serving as a postdoctoral fellow at Exxon. He came to Purdue as an assistant professor in 1989, where he received awards including an NSF Presidential Young Investigator award and an ONR Young Investigator Program Award, as well as a Charles B. Murphy Outstanding Undergraduate Teaching Award. His research activities include experimental laser spectroscopy, liquid theory, and optical instrument design, as described in over 180 papers, 9 patents, and a textbook entitled Understanding Physical Chemistry.
Single-cell transcriptomic data has the potential to radically redefine our view of cell type identity. Cells that were previously believed to be homogeneous are now clearly distinguishable in terms of their expression phenotype. Methods for automatically characterizing the functional identity of cells, and their associated properties, can be used to uncover processes involved in lineage differentiation as well as sub-typing cancer cells. They can also be used to suggest personalized therapies based on molecular signatures associated with pathology. We present a new framework, called ACTION, to infer the functional identity of cells from their transcriptional profiles, classify them based on their principal functions, and reconstruct regulatory networks that are responsible for mediating their identity. Results from using ACTION to sub-type cancer cells in Melanoma patients reveal novel biomarkers along with their underlying regulatory networks and drug response.

(Work with Shahin Mohammadi, Vikram Ravindra, and David Gleich)

Bio: Ananth Grama is a Professor of Computer Science at Purdue University and Associate Director of the Center for Science of Information (a Science and Technology Center of NSF). His primary areas of interest are parallel and distributed computing, large scale data analytics, and applications. He received his Ph.D. from the University of Minnesota in 1996, his M.S. in Electrical and Computer Engineering from Wayne State University in 1990, and his B. Engg. in Computer Science from the Indian Institute of Technology, Roorkee in 1989. He directed the Computational Science and Engineering and Computational Life Sciences programs at Purdue from 2012-16, and Chaired the Biodata Management and Analysis (BDMA) Study Section of National Institutes of Health from 2012-14. He is a recipient of the National Science Foundation CAREER award (1998), University Faculty Scholar Award (2002-07), is a Fellow of the American Association for the Advancement of Sciences (2013), and a Distinguished Alumnus of the University of Minnesota (2015).
From a variety of observations spanning all cosmological time-scales and length-scales, we do know that most of the mass in the Universe is in the form of Dark Matter. Even some properties of Dark Matter are known, and yet, we have no idea what this Dark Matter actually is made of. Prof. Lang works on experiments to try and discover Dark Matter particles. One particularly promising avenue is with the XENON detectors, located in an underground laboratory in Italy and operated by an international collaboration. Another comes from exploiting the unique properties of liquid xenon-based detectors as single-electron detection devices. Prof. Lang’s particular focus is on unconventional signatures from new particles that might have been overlooked in the standard analyses. This presentation will give an insight into his search for the unknown: How do we know that Dark Matter exist? How can we try to find Dark Matter particles? And what new opportunities present themselves as these experimental programs go forward?

Bio: Rafael Lang completed his undergraduate work at the University of Ulm, Germany; Monash University Melbourne Australia; and at the DESY Zeuthen, Germany. He graduated in 2005 with a Diplom searching for neutrinos with the AMANDA experiment at South Pole. His PhD 2008 is from the Technical University Munich, Germany, for his work at the Max Planck Institute of Physics on the CRESST dark matter search experiment. He then moved for a Postdoc to Columbia University New York, on the XENON100 dark matter search experiment, until 2011. Rafael is at Purdue since 2011 (Associate since 2017) leading the Purdue dark matter group. The group holds hardware and analysis responsibilities on the XENON dark matter search experiments, has co-founded a new effort to search for dark matter signals at the single-electron quantum limit, and runs an active laboratory effort to develop relevant technologies further.