

August 6, 2014

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EAPS MEETINGS/SAVE THE DATE-FALL 2014

EAPS WELCOME BACK PICNIC

Thursday, August 21st, 3:30 p.m. – 6:30 p.m.
Happy Hollow Park (Pavilion 4)

EAPS FACULTY & STAFF RETREAT

Friday, August 22nd, 8:30 a.m. – 3:30 p.m.
Beck Ag Center, Rm 111
4540 Hwy 52 West
West Lafayette, IN 47906

EAPS OUTSTANDING ALUMNI EVENT

Friday, Oct 10th

FALL FACULTY MEETING SCHEDULE

Tuesday, Sept 23rd, Oct 7th, and Nov 18th
3:00 p.m. - 4:30 p.m.
HAMP 3201

FALL CLASSES BEGIN

Monday, August 25th

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## EAPS PUBLICATIONS

Guangcun Hao, Qianlai Zhuang, Jianjun Pan, Zhenong Jin, Xudong Zhu, and Shaoqing Liu, Soil thermal dynamics of terrestrial ecosystems of the conterminous United States from 1948 to 2008: an analysis with a process-based soil physical model and AmeriFlux data, *Climatic Change*, DOI 10.1007/s10584-014-1196-y.

Weeks, Faith and Harbor, Jon (2014) Assessing the Impact of a K-12 Engagement Program on Graduate Learning Outcomes for Communicating with Diverse Audiences, Pedagogy, and Community Engagement, *International Journal for the Scholarship of Teaching and Learning*: Vol. 8: No. 2, Article 16.

Chen Min; Zhuang, Qianlai; He, Yujie, An Efficient Method of Estimating Downward Solar Radiation Based on the MODIS Observations for the Use of Land Surface Modeling. *Remote Sens.* 2014, 6, 7136-7157.

## PRESENTATIONS AT MEETINGS

Bostock, M.G., A.A. Royer, G. Savard, G.Matharu1, and R.L. Nowack (2014) Low Frequency Earthquake Templates: A New Seismic Source for Imaging Subduction Zone Structure, SEG/AGU Workshop on Advances in Active + Passive "Full-Wavefield" Seismic Imaging:From Reservoirs to Plate Tectonics, Vancouver Canada, July 22-24.

Nowack, R.L. and M.G. Bostock (2014) Interferometric Redatuming with Application to Low Frequency Earthquakes in Northern Cascadia, SEG/AGU Workshop on Advances in Active + Passive "Full-Wavefield" Seismic Imaging:From Reservoirs to Plate Tectonics, Vancouver Canada, July 22-24.

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EAPS NEWS

PURDUE ASSISTANT PROFESSOR TAKING PURDUE TO MARS IN 2020

Briony Horgan, an assistant professor in Earth, Atmospheric, and Planetary Sciences, is the co-investigator of an instrument that will be traveling to Mars for a NASA rover mission in 2020. The mission of the Mars 2020 rover mission is to look for bio signatures, or evidence of ancient Martian life. Over the next six years, the instrument will be built at Malin Space Science Systems in California, tested at Arizona State University, and finally assembled with the rest of the rover at Kennedy Space Center in Florida. Once the rover lands, Horgan and her students will be involved in day-to-day operations as well as image calibration.

To view the complete story, please click here:

<http://goo.gl/BeYDxu>

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### X-RAYS, LASERS, AND PROTEINS SEMINAR

FRIDAY, August 22, 2014

10:30 A.M.

ROOM EE 317

Rich Millane, from the University of Canterbury, Department of Electrical and Computer Engineering, will be holding a seminar about x-rays, lasers, and proteins in regards to structural biology on Friday, Aug 22<sup>nd</sup> at 10:30 a.m., room EE 317.

Please see attached for more details.

### EAPS LIBRARY

"The summer is almost over and it is time to start thinking about fall classes. The EAPS library would like to hear from you if you need materials placed on reserve. I have received the course textbook list from the secretary and will be putting those books on reserve. Please let me know as soon as possible if there is any other books you would like to add. If the library does not have it in our collection and you would like something ordered I will need to know ASAP. Thank you and have a great semester!" -Terry Wade

### TRUMAN FELLOWSHIP

Sandia National Laboratories is seeking candidates for the President Harry S. Truman Fellowship in National Security Science & Engineering, a three-year appointment allowing recipients to pursue independent research that supports Sandia's national security mission.

For more information click here: <http://goo.gl/p5bJ9M>

### ENVIRONMENTAL CONFERENCE PROVIDES TOOLKIT FOR TEACHERS TO EDUCATE STUDENTS ABOUT CLIMATE CHANGE

The event will include a keynote lecture by Purdue chemistry professor Paul Shepson, panel discussions on climate change, and sessions that take participants through the implementation of a professional development toolkit for climate science education.

For more information click here: <http://goo.gl/Jsa7X>

### NESTA STUDENT MEMBERSHIPS

The [National Earth Science Teachers Association](#) is delighted to announce that they have instituted a new category of membership to help the next generation of Earth and space **science educators and scientists - Free Student Membership!**

NESTA now offers up to two sequential free years of student membership at the [Basic](#) level for students at the university level who are studying to become teachers or scientists in the Earth and space sciences, environmental sciences, or related disciplines

For more details, and how to apply, go to <https://www.nestanet.org/cms/user/register/student>

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For more information click here: <http://goo.gl/Jsa7X>

### EASTERN SECTION AAPG STUDENT PRESENTATION TRAVEL GRANTS

The Eastern Section of the American Association of Petroleum Geologists (Eastern Section-AAPG) has a program to support the cost of students traveling to the annual Eastern Section meeting to present the results of research at the conference.

This year, the Eastern Section- AAPG Annual meeting will be held in London, Ontario, **September 27-October 1, 2014.**

For more information click here: <http://goo.gl/Qid5OP>.

### STUDENT TRAVEL GRANTS & SCHOLARSHIPS

Application Deadline: 13 August 2014 11:59 P.M. EDT

Student Travel Grants for current student members of AGU are available for a limited number of students and young scientists planning to attend the 2014 Fall Meeting. All students may apply, but preference will be given to students from races, countries, and genders which are underrepresented in the sciences.

**Applications Open: 5 June 2014**

**Application Deadline: 13 August 2014**

**Recipients Announced: 3 September 2014**

For more information please click here:

<http://goo.gl/do7ZKa>

### GRADUATE STUDENT RESEARCH PROGRAM

The Department of Energy (DOE) Office of Science is pleased to announce that the Office of Science Graduate Student Research (SCGSR) program is now accepting applications for the 2014 solicitation. **Applications are due 5:00pm ET on Wednesday September 24, 2014.**

Detailed information about the program, including eligibility requirements and access to the online application system, can be found at: <http://science.energy.gov/wdts/scgsr/>.

### 2014 ROCKY MOUNTAIN RENDEZVOUS

The 13th Annual Rocky Mountain Rendezvous of Geoscience Students and Employers (RMR) will be convening in Laramie Wyoming Sept 26-29. This is a great opportunity to network, learn about careers in the petroleum industry and get an internship or a job. The RMR provides lots of face time between recruiters and students in order to provide satisfying experiences for all.

**For more information and to register please click here:** <http://rmr.uwyo.edu>

### BIG TEN + GRADUATE SCHOOL EXPOSITION

[www.purdue.edu/gradexpo](http://www.purdue.edu/gradexpo)

**The Grad Expo features:**

- educational workshops
- an elite graduate school fair
- networking receptions
- and more!

The 2014 Grad Expo will be held on September 21 and 22, 2014! This annual event is held at Purdue's West Lafayette, Indiana campus.

For more information please see attached.

### FIELD TRAINING AND RESEARCH PROGRAM AT METEOR CRATER



**Barringer Meteorite Crater, Arizona  
October 4 - October 12, 2014**

For more information, please visit

<http://www.lpi.usra.edu/exploration/mcFieldCamp/>

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For more info and to register please visit our website at:

<http://rmr.uwyo.edu>

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This year, the Eastern Section- AAPG Annual meeting will be held in London, Ontario, September 27-October 1, 2014.

All eligible students whose abstract is accepted for the AAPG Eastern Section meeting will receive some support; the amount available to applicants depends on the number of applicants each year.

For more information visit <http://goo.gl/Qid5OP>, and see below for travel grant application and guidelines.

### ~~~~~ CAMPUS NEWS

2013-14 Reportable Outside Activity (ROA) forms are academic year documents and will expire June 30. New forms for the 2014-15 need to be processed as indicated in the reminder that came out in Purdue Today:

<http://goo.gl/86psAh>

The electronic information can be found at <https://webapps.ecn.purdue.edu/VPEC/OAD/> and the Conflicts of Commitment and Reportable Outside Activities (III.B.1) policy is available at

[www.purdue.edu/policies/ethics/iiib1.html](http://www.purdue.edu/policies/ethics/iiib1.html).

### ~~~~~ ONLINE DEVELOPMENT MATERIALS

Purdue benefits-eligible faculty and staff can now access Lynda.com's catalog of more than 2,500 online courses.

This is a great opportunity for professional development.

<http://goo.gl/afQQmv>

### Upcoming Birthdays

|             |           |
|-------------|-----------|
| Lucy Flesch | 12 August |
| Terry West  | 15 August |



### 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 [www.purdue.edu/eas/](http://www.purdue.edu/eas/) and **Click on News** to access active links as needed. Material for inclusion in the newsletter should be submitted to Fallon Seldomridge ([fseldomr@purdue.edu](mailto:fseldomr@purdue.edu)) by **5:00pm 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.purdue.edu/eas/info\\_tech/index.php](http://www.purdue.edu/eas/info_tech/index.php).

Also, as an additional resource for information about departmental events, seminars, etc., see our departmental calendar at <http://eaps.purdue.edu>.



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## **SEMINAR**

**FRIDAY, August 22, 2014**

**10:30 A.M.**

**ROOM EE 317**

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**Rick Millane**  
**University of Canterbury**  
**Department of Electrical and Computer Engineering**

## **X-rays, lasers and proteins**

### **Abstract**

Structural biology is concerned with understanding biological function through studying the structures of the molecules of life – biological macromolecules. The three-dimensional structures (shapes) of these molecules determine their biological function, information that is essential for understanding disease processes and for drug design. One of the primary techniques for imaging biological macromolecules is x-ray crystallography, which involves shooting x-rays at protein crystals, measuring the resulting diffraction pattern, and then inverting the data to obtain an image of the molecule. X-ray free-electron lasers (XFELs) are the latest x-ray sources, that produce extremely short x-ray pulses that are a million times brighter than those produced by existing synchrotron x-ray sources. Their unique characteristics are opening up a new frontier in protein structure imaging.

I will begin with a tutorial overview of protein structure and x-ray crystallography (“structural biology for engineers”), and then describe some of the intricacies of XFELs and the signal processing challenges involved with using the data they produce for protein structure determination.



## Sandia National Laboratories

Operated for the U.S. Department of Energy's  
National Nuclear Security Administration  
by **Sandia Corporation**

P.O. Box 5800  
Albuquerque, NM 87185-0101

P.O. Box 969  
Livermore, CA 94551-0969

Phone: (505) 844-7261  
Fax: (505) 844-1120  
Internet: [pjhomme@sandia.gov](mailto:pjhomme@sandia.gov)

**Dr. Paul J. Hommert**  
President and Laboratories Director

Dr. Jeffrey Roberts  
Dean, College of Science  
Purdue University  
150 North University Street, Math 928  
West Lafayette, IN 47907-2045

Dear Dr. Roberts: 

Sandia National Laboratories is seeking candidates for the President Harry S. Truman Fellowship in National Security Science & Engineering, a three-year appointment allowing recipients to pursue independent research that supports Sandia's national security mission. In my role as campus executive to your university, I would like to encourage your top PhD students in science or engineering to apply. Please share this information with those top PhD students, deans, department chairs, faculty, research center directors, graduate studies offices, fellowship offices, and professional societies.

Truman Fellowship candidates are expected to have solved a major scientific or engineering problem in their thesis work or will have provided a new approach or insight to a major problem, as evidenced by a recognized impact in their field. Fellows may work at either principal location, Albuquerque, NM or Livermore, CA. The salary is \$111,200. Candidates must be able to obtain a security clearance and be seeking their first national laboratory appointment. They must have been awarded a PhD (with strong academic standing) within three years at the time of application or will have completed all PhD requirements by commencement of the appointment. Applications are due November 1, 2014.

We are proud to have selected Fellows from Caltech, MIT, Georgia Tech, Stanford, and University of Texas-Austin, among others.

For questions on the application process, please contact Sara Draper at 505.845.7998 or [sjdrape@sandia.gov](mailto:sjdrape@sandia.gov). For research mentor or technical questions, contact Yolanda Moreno at 505.284.2106 or [ymoreno@sandia.gov](mailto:ymoreno@sandia.gov). More information is available at:

[http://www.sandia.gov/careers/students\\_postdocs/fellowships/truman\\_fellowship.html](http://www.sandia.gov/careers/students_postdocs/fellowships/truman_fellowship.html)

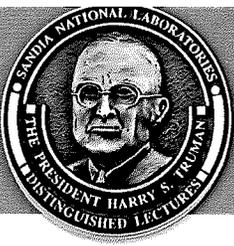
Sincerely,

Enclosure: Truman Ad



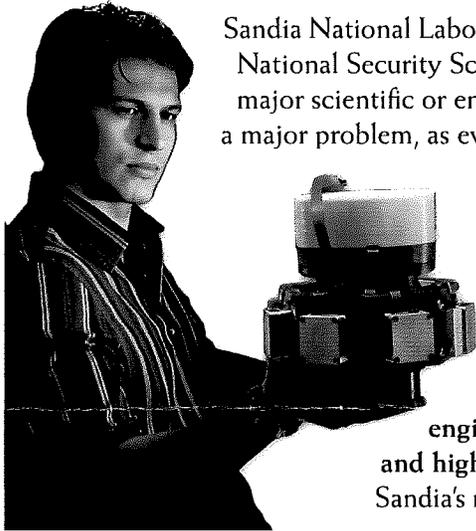
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# SANDIA NATIONAL LABORATORIES

## President Harry S. Truman Fellowship in National Security Science and Engineering



Sandia National Laboratories is seeking applicants for the President Harry S. Truman Fellowship (in National Security Science and Engineering). Candidates for this position are expected to have solved a major scientific or engineering problem in their thesis work or have provided a new approach or insight to a major problem, as evidenced by a recognized impact in their field.

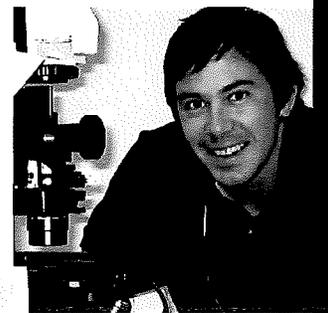
The Fellowship provides the opportunity for new Ph.D. scientists and engineers to pursue independent research of their own choosing that supports Sandia's national security mission. The appointee is expected to foster creativity and to stimulate exploration of forefront science and technology and high-risk, potentially high-value research and development.

Sandia's research focus areas are: **bioscience, computing and information science, engineering science, materials science, nanodevices and microsystems, radiation effects and high energy density physics, and geosciences.** Additional R&D programs in support of Sandia's mission areas can be found [here](#).

Candidates must meet the following requirements: the ability to obtain a DOE "Q" clearance, and a Ph.D. (3.5 undergraduate and 3.7 graduate GPA preferred), awarded within the past three years at the time of application, or completed Ph.D. requirements by commencement of appointment. Candidates must be seeking their first national laboratory appointment (no previous postdoctoral appointments at a national laboratory).

The Truman Fellowship is a three-year appointment normally beginning on October 1. The salary is \$111,200 plus benefits and additional funding for the chosen proposal. The deadline is November 1 of each year. For more information on the Fellowship and how to apply, see:

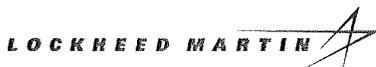
*Sandia works in close partnership with federal agencies, universities, and industries to remain at the leading edge in accomplishing our mission.*



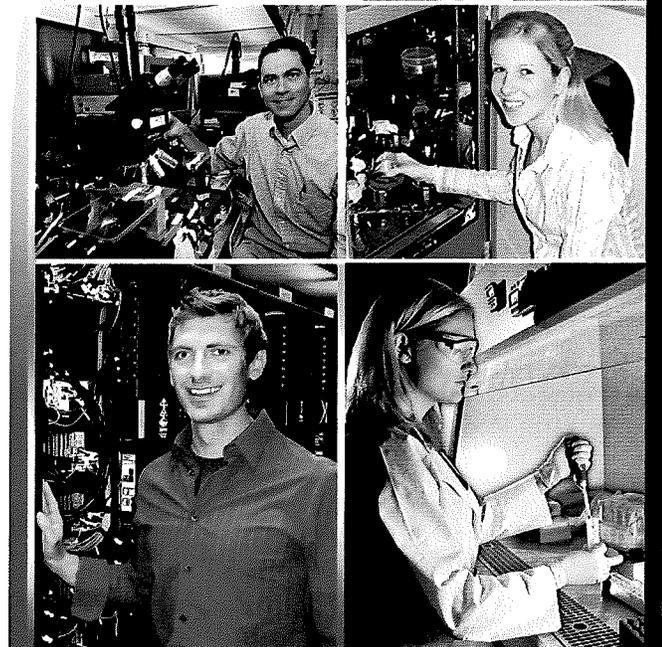
[http://sandia.gov/careers/students\\_postdocs/fellowships/truman\\_fellowship.html](http://sandia.gov/careers/students_postdocs/fellowships/truman_fellowship.html)

Sandia National Laboratories is one of the country's largest research facilities employing nearly 8,500 people at major facilities in Albuquerque, New Mexico and Livermore, California. Please visit our website at [www.sandia.gov](http://www.sandia.gov).

Sandia is an equal opportunity employer.  
We maintain a drug-free workplace.



Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.



**SUNDAY & MONDAY ■ SEPTEMBER 21-22, 2014**

**HOSTED BY: PURDUE UNIVERSITY ■ WEST LAFAYETTE, INDIANA**

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  - ▶ Engineering
  - ▶ Mathematics
  - ▶ Science
  - ▶ Technology
  - ▶ Science-related disciplines

**CONCERNED ABOUT THE COST TO ATTEND?**

**VISIT OUR WEBSITE TO APPLY FOR A TRAVEL SCHOLARSHIP.**

