UPCOMING EAPS MEETINGS

SPRING FACULTY MEETING SCHEDULE
Feb. 10th (Dean’s Visit to Dept.), Mar. 24th, and Apr. 14th, 2015
3:00-4:30 p.m.
HAMP 3201

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GRAD EXPO
February 27th & 28th, 2015

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OTHER IMPORTANT DATES TO REMEMBER
FORM 40s DUE
March 14, 2015

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EAPS DISTINGUISHED SCIENCE ALUMNI AWARD RECEPTION
April 17, 2015

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EAPS ANNUAL AWARDS BANQUET
April 20, 2015
Ross-Ade Pavilion
5:30-9:00 p.m.

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EAPS ALUMNI ADVISORY BOARD MEETING
April 21, 2015

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EAPS PUBLICATIONS

SPECIAL COLLOQUIA

Daniel Stern
EAPS ATMS faculty search candidate
“The Structure and Dynamics of Coherent Vortices in the Eyewall Boundary Layer of Tropical Cyclones”
Wednesday, February 4, 2015
10:30 a.m.
HAMP 2108

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EAPS COLLOQUIA

Professor George Bodner
Dept. of Chemistry, Purdue University
“I’m Finally Beginning to Understand Why I Didn’t Understand…”
Thursday, February 5, 2015
3:30 p.m.
HAMP 1252

UNDERGRADUATE AND GRADUATE STUDENT INFORMATION

PURDUE SUMMER CAMP RECRUITMENT DAY 2015
Looking for a summer job? Sign up to meet with representatives from camps located locally and across the country.
Attend the SUMMER CAMP Recruitment Day
Thursday, February 12, 2015
9:00 a.m.-3:00 p.m.
STEW 214
(by interview sign-up)
Undergraduate or Graduate STEM Students: Are you passionate about your major? Do you enjoy sharing your passion and knowledge with younger students? Then join us at our callout to learn more about the Counselor position and how you can directly impact the youth of tomorrow through the Duke Energy Academy at Purdue.

What: 2015 DEAP Counselor Callout
When: Tuesday, February 10th, 5:30pm
Where: ARMS 1109
Why: Knowledge! (And pizza & pop)

Learn more about:
- A counselor's responsibilities
- Time requirement and planning meetings
- The application process
- Compensation (hint: $$$ and food!)

The Duke Energy Academy at Purdue, or DEAP, is an immersive program for high-achieving high school juniors and seniors, and secondary science teachers. During the week-long course on STEM-related energy topics, participants will be provided with resources and incentives to inspire both students and teachers in sustainable energy solutions.

**Summer availability (through June) is a must to be considered for the position**

If you have any questions please email them at energyacademy@purdue.edu or visit their office in Mann Hall, Room 105. You can also check out the DEAP website here: http://goo.gl/dYAyQW

Please see attached flyer for more information.

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Undergraduate college students majoring in Applied Mathematics, Engineering, Physics, Chemistry, Biology or Geology are encouraged to apply. This ten-week internship will offer qualified students the opportunity to work with some of the most notable scientists in the world and learn about marine science and technology while earning a modest salary.

The Marine Physical Laboratory (MPL) is an organized research unit of the University of California, San Diego (UCSD) and lab at the Scripps Institution of Oceanography. Originally established as a Navy-orientated research laboratory in 1946, MPL has maintained a strong multidisciplinary research program consisting entirely of sponsored projects, with a large sponsorship from the Department of Defense (DOD) and the National Science Foundation (NSF).

**Research Highlights**
- Whale Acoustics
- Coastal Observatory Development
- Whole Sky Imager
- Observations of Waves and Currents Nearshore
- Time Reversal Mirror in the Ocean
- Air-Sea Interaction Research
- Optical and Ancillary Measurements at High Latitudes in Support of the MODIS Ocean Validation Program
- Reference Materials for Oceanic Carbon Dioxide Measurements

**Qualifications**
- Currently enrolled as an undergraduate student at a college or university with a major applicable to research done at MPL and NOT in your senior year.
- Considering a career in scientific research
- Available to start at MPL in La Jolla, CA on or after June 1, 2015, and work the duration of the internship, ten consecutive weeks from the start date, for 40 hours per week at a salary of $14/hr.
- A U.S. citizen or permanent resident and NOT a previous MPL intern
- OK with working a short distance from some of Southern California's best beaches and surf

**How to apply**
- Visit http://www.mpl.ucsd.edu/ to complete the application online
- Applications will be accepted online only December 19, 2014 - February 27, 2015
- Accepted interns will be notified by mid-late March 2015

**MORE INFORMATION**
- http://www.mpl.ucsd.edu/
- http://sio.ucsd.edu/

**Contact**
mpl-internship@ucsd.edu
2015 GRADUATE STUDENT AND POST-DOCTORAL FELLOWS RESEARCH AWARDS COMPETITION

February 18, 2015
6:00-9:00 PM
STEWART 218 A-D
Call for Abstracts/Posters

The Purdue University Chapter of Sigma Xi, the scientific research society, is conducting a Graduate Student (and post doctoral) Research Awards Competition in the format of a scientific poster session. You and your advisor do not need to be Sigma Xi members to participate in this competition.

There will be a first prize of $200, provided by Sigma Xi and The Graduate School, and recognition for other outstanding posters in each of the four research areas:

*Physical Sciences
*Life Sciences
*Engineering
*Behavioral and Social Sciences

There will be one prize for each approximately 15 posters in a research area. In recent years, this has resulted in 2-3 top awards in both Life Sciences and in Engineering.

Post-doctoral Fellows also are eligible to participate. There will be one award for post-doctoral fellows across the four categories.

Please see attachment for details on participation.

GRADUATE STUDENT CAREER FAIR

February 16, 2015
Information Session
5:30-7:30 p.m.

Dinner with Employers [RSVP required]
7:30-8:30 p.m.

February 17, 2015
Career Fair
12:00-4:00 p.m.
Venue: Stewart Center 218

Feb. 17, 2015
Workshops to prepare for the Career Fair
9:30-11:00 a.m.
Stewart Center 202

*30-sec commercial-Getting the most out of CF
*Tips on how to approach the employers from KLA-Tencor and Intel

OTHER NEWS

EXECUTIVE VICE PRESIDENT FOR RESEARCH & PARTNERSHIPS WORKSHOPS

The EVPRP will be hosting a workshop on How to Work with Industry and Evaluating Contracting Options. This workshop, which will focus on industry partnerships, contracting processes, and technology transfer, is scheduled for February 24, 2015 from 11:30 AM-1:00 PM, in Stewart Center, room 202.

Geanie Umberger, Assistant Vice President for Research, will discuss the unique concerns and considerations faculty face when working with industry partners as well as the resources in place at Purdue to help faculty develop these relationships. She will also provide details on the industrial contracting processes at Purdue, explain how agreements are negotiated, and discuss new, flexible IP options that are available when working with industry. Dan Hirlleman, Chief Corporate and Global Partnerships Officer, will talk about the new Purdue Partners program, which will be starting soon.

Lunch will be served so registration is required at:
http://goo.gl/Wskzul

The deadline for registration is: Thursday, Feb. 19th, 2015

DEADLINE TO APPLY FOR APSAC GRANTS IS MARCH 2

APSAC is now accepting applications for its individual professional development grants.

Examples of funded grant applications include but are not limited to professional education or certification; attendance at lectures, conferences and seminars; or tuition assistance for academic classes. The maximum award amount is $750. Applications for spring grants will be considered for activities occurring from Jan. 1, 2015 to Dec. 31, 2015.

The application process will be completed online, and the deadline is 11:59 p.m. March 2nd for this grant period. More information and a link to the online application are available at www.purdue.edu/apsac.

Questions may be directed to Sal Vallejo at svallejo@purdue.edu or Carrie Hanson at cjhanson@purdue.edu.

BIRTHDAYS

Mike Baldwin                      Feb. 7th
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/ 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.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://calendar.science.purdue.edu/eas/seminars.
The boundary layer within the eyewall of intense tropical cyclones is both highly turbulent and contains coherent small-scale (of order 1 km) vortices. Observations from dropsondes indicate that extreme updrafts of 10-25 m/s can occur in the lowest 2 km, sometimes as low as a few hundred meters above the surface. These updrafts are often collocated with or found very nearby to local extrema in horizontal wind speed, which sometimes exceed 100 m/s. Therefore, these vortices may be responsible for generating some of the strongest surface wind speeds found anywhere on earth.

We use the CM1 model to simulate intense tropical cyclones in an idealized framework, with horizontal grid spacing as fine as ~60 meters. At this grid spacing, the scales of the vortices are well resolved. By examining individual features and compositing over many updrafts, we find that there is a consistent structure and relationship between vorticity, vertical velocity, and near-surface windspeeds. We quantitatively show that buoyancy is not responsible for the acceleration of strong boundary layer updrafts. Instead, the updrafts are forced by dynamical pressure gradients associated with strong gradients in the velocity fields. It is currently unknown whether dropsonde observations represent quasi-vertical profiles through the features, or if instead the dropsondes are horizontally advected through the features. Using simulated dropsonde trajectories, we show that sondes are likely to be horizontally advected through features, and therefore apparent vertical variability in observed kinematic and thermodynamic profiles may actually be primarily in the horizontal. In observations, extreme updrafts are almost exclusively found in Category 4 and 5 hurricanes. We conduct simulations at varying intensity to investigate whether or not similar features exist in weaker storms. Finally, we have developed an objective algorithm that allows us to track individual updrafts/vortices in time, and we use this to investigate the evolution and lifecycle of these features and to gain further insight into their dynamics.
I’m Finally Beginning to Understand Why I Don’t Understand

Prof. George Bodner
Purdue University

Thirty years of research on the teaching and learning of chemistry has helped me understand why I, like so many others, struggled to understand the chemistry courses I took in spite of the fact that I was a motivated student, who was interested in becoming a chemist. This seminar will focus on what we have learned about problem solving in chemistry. The goal, by the end of the lecture, is to build a model of problem solving that has three characteristics. First, it has to be consistent with the results of our studies of what successful problem solvers do when they solve novel problems. Second, it must be teachable; it must be something that can be used by both undergraduates and graduate students to help them become more successful at problem solving. Third, it has to be transferrable; it has to be generic enough that it not only leads to success in one particular chemistry course but can be applied to other chemistry courses, as well as courses outside the department for which chemistry is a prerequisite.

Thursday, February 5, 2015
3:30 p.m.
Room 1252 HAMP

Refreshments at 3:00 pm
Room 2201/ HAMP
The Duke Energy Academy at Purdue, or DEAP, is an immersive program for high-achieving high school juniors and seniors, and secondary science teachers. During the week-long course on STEM-related energy topics, participants will be provided with resources and incentives to inspire both students and teachers in sustainable energy solutions.

**COUNSELOR CALLOUT**

Are you passionate about STEM? Do you enjoy sharing your passion and knowledge with younger students? Then join us at our callout to learn more about the Counselor position and how you can directly impact the youth of tomorrow!

**Learn more about:**
- Counselor responsibilities
- Time and training requirements
- DEAP activities and projects
- Application & interview process
- Compensation (*hint: $$ and food!*)

**TUESDAY, FEB. 10TH**

5:30 PM

**ARMS 1109**

PIZZA & POP PROVIDED!

“**What is DEAP?**”

The Duke Energy Academy at Purdue, or DEAP, is an immersive program for high-achieving high school juniors and seniors, and secondary science teachers. During the week-long course on STEM-related energy topics, participants will be provided with resources and incentives to inspire both students and teachers in sustainable energy solutions.

**QUESTIONS?**

Email us at:

energyacademy@purdue.edu

Or visit our office in MANN 105
GRADUATE STUDENT CAREER FAIR
February 16th, 2015
Information Session
5:30 pm - 7:30 pm
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WORKSHOPS TO PREPARE FOR THE CAREER FAIR
Feb. 17th, 2015
9:30 – 11:00 AM
Stewart Center 202

- 30-sec commercial-Getting the most out of CF.
- Tips on how to approach the employers from KLA-Tencor and Intel.

Aerospace Corporation • dbHMS • Epic • FBI • Intel • KLA-Tencor
United Technologies Research Center and many more...

For more information log onto purdue.edu/pgsg/jobfair
The Purdue University Chapter of Sigma Xi, the scientific research society, is conducting a Graduate Student (and post doctoral) Research Awards Competition in the format of a scientific poster session. You and your advisor do not need to be Sigma Xi members to participate in this competition.

There will be a first prize of $200, provided by Sigma Xi and The Graduate School, and recognition for other outstanding posters in each of the four research areas:

- Physical Sciences
- Life Sciences
- Engineering
- Behavioral and Social Sciences

There will be one prize for each approximately 15 posters in a research area. In recent years, this has resulted in 2-3 top awards in both Life Sciences and in Engineering.

Post-doctoral Fellows also are eligible to participate. There will be one award for post-doctoral fellows across the four categories.

To participate:

1. Submit an abstract of your research by 11:59 pm, FRIDAY February 6, 2015. These will be published in a booklet. Applications, in electronic format, should be submitted to HNZELAZ@purdue.edu. Those who submit abstracts will receive detailed information about poster preparation.

2. Present a poster at the 2015 SIGMA XI GRADUATE STUDENT RESEARCH AWARDS COMPETITION POSTER SESSION in Stewart Center, Rooms 302-306 on Wednesday, February 18, 2015. Posters will be setup between 12:30 - 4:00 pm. Presentation and judging is from 6:00 - 9:00 pm (for presentation and judging). Presenters are requested to hang their posters by 4:00 pm and to be at their posters from 6:00-8:30 pm to answer questions from the judges. Judging will be conducted. You will be asked to give a three (3) minute (no longer!) presentation about your work to each judge. Please practice your presentation, so that it is no longer than 3 minutes.

3. Posters selected for award will be displayed at the Annual Sigma Xi Initiation Banquet to be held in the John Purdue Room in Stone Hall in April (date tbd). In addition, all award winners and those highlighted for Honorable Mention will be invited to attend the banquet in recognition of their outstanding research endeavors.

This is an excellent opportunity to learn about the excellence and diversity of scientific research at Purdue as well as to make others aware of your contributions. All graduate students and post-doctoral researchers with appropriate research experiences are urged to participate in this competition.

**For additional information, please contact:**
Howard N. Zelaznik, Chairperson
Sigma Xi Graduate Student Research Awards Competition
Department of Health and Kinesiology
(765-494-5601 or hnzelaz@purdue.edu)
Graduate Student and Post-Doctoral Research Poster Award Competition
2015
Abstract Submission Form

Full Name
University
College or School
Department
Email
Major Professor
Abstract Title

Area for poster to be judged
- Physical Sciences
- Engineering
- Life Sciences
- Behavioral and Social Sciences Post-Doctoral Fellow

Acknowledgement of Permission:

- Submit an abstract in **MS Word format** by 11:59 pm, Friday, **February 6, 2015**. These will be published in a booklet. Forms should be submitted electronically to hnzelaz@purdue.edu. Information about poster preparation is provided on a subsequent page. You will receive confirmation of abstract receipt.

- Present a poster at the 2015 SIGMA XI GRADUATE STUDENT RESEARCH AWARDS COMPETITION POSTER SESSION in Stewart Center, Rooms 218 A---D on Wednesday February 12, 2014. Rooms will be open from 12:30---4:00 pm (for poster set up and viewing) and 6:00---9:00 pm (for presentation and judging). Presenters are requested to hang their posters by 4:00 pm and to be at their posters from 6:00---8:30 pm to answer questions from judges. Judging will be conducted by a panel of faculty selected from each of the above research areas.
Posters selected for an award will be displayed at the Annual Sigma Xi Initiation Banquet to be held in the John Purdue Room in Stone Hall in April 2014 (exact date to be announced). In addition, all award winners and those highlighted for Honorable Mention will be invited to attend the banquet in recognition of their outstanding research endeavors.

By submitting this form electronically, I hereby give my unrestricted permission for the Purdue University Chapter of Sigma Xi to reproduce this professional abstract in the 2014 Graduate Student Research Poster Award Competition abstract booklet. I also hereby certify and attest that I have approval from my Major Professor to submit this abstract, and I am the person specified in the abstract.

Please note that this abstract is not to be considered a published abstract that should be listed in your academic vita. You can list the poster presentation as an intramural presentation on your vita.

Please submit this form and your abstract in MS Word format via email to hnzelas@purdue.edu on or before Friday February 6, 2015.

Please use the following template for your abstract (NEXT PAGE. DO NOT CHANGE FONT, MARGINS, ETC. ABSTRACTS WILL BE RETURNED IF YOU DO NOT MAINTAIN FORMAT ... THANKS SO MUCH FOR YOUR UNDERSTANDING)

List all contributing authors and their affiliations; the title of your abstract, and the abstract (Note: the abstract itself can be no more than 250 words, this does not include title, authors etc.)

Posters should be 56” wide by 36” high. Posters will be judged on the following criteria:

**Completeness:** All relevant information is contained in the poster (Background, purpose, methods, results, interpretations, and conclusions. No misspellings or grammatical errors.

**Clarity:** Poster is accessible to a person not expert on its content. There should be a minimum of jargon.

**Design:** Color and layout attract attention and guide the reader. Poster is legible (axes are readable) from at least 3 ft.

**Presentation:** Presenter(s) professional (both in speech and appearance) and demonstrate knowledge of the subject matter and can clearly and concisely answer all questions.

**Promise:** The poster clearly explains the need for the research and makes apparent what the results of this research will contribute to the academic field.

Title of Poster
Author Last Name, First Initial, etc
Department or Academic Unit
e-mail: yourcareeraccount@purdue.edu
Name of faculty sponsor
Abstract text