UPCOMING EAPS MEETINGS

EAPS STAFF MEETING
Monday, Nov. 24, 2014
12:00-1:00 p.m.
HAMP 2201

EAPS RECEPTIONS AT CONFERENCES

AGU (SAN FRANCISCO)
Wednesday, Dec. 17, 2014
7:00 - 9:00 p.m.
Thirsty Bear-Billar Room

AMS (PHOENIX)
Tuesday, Jan. 6, 2015
6:30 - 8:30 p.m.
Sheraton Phoenix Downtown Hotel (Laveen A)

SPRING FACULTY MEETING SCHEDULE

Tuesday, Jan. 27th, Feb. 10th (Dean’s Visit to Dept.), Mar. 24th, and Apr. 14th, 2015
3:00-4:30 p.m.
HAMP 3201

EAPS COLLOQUIA

TRACKING SOUTHERN PATAGONIAN GLACIAL AND CLIMATE DYNAMICS OVER THE LAST GLACIAL CYCLE
Alessa Geiger
University of Glasgow
EAPS Visiting Scholar
Thursday, Dec. 4, 2014
3:30 p.m.
HAMP 1252

JOINT CHEMISTRY AND EAPS SPECIAL SEMINAR: KUIPER BELTS—CRADLES OF COSMIC LIFE
Professor Ralf I. Kaiser
University of Hawaii at Manoa, Honolulu
Tuesday, Nov. 25, 2014
3:30-4:30 p.m.
HAMP 2201

EAPS NEWS

HAMP 2201 & HAMP 2173

We are very fortunate as a department to have our meeting rooms (HAMP 2201 and HAMP 2173) available for us to use. As you may have noticed, they are being used more and more for various meetings. Thus we ask that you stay mindful of the schedules posted outside the rooms, and be cognizant of times when meetings are going to take place. If needed, please leave the room accordingly so that those who reserved the room may have their meeting in private during their scheduled time.

UNDERGRADUATE AND GRADUATE STUDENT INFORMATION

PURDUE UNDERGRADUATE RESEARCH WEBSITE

Purdue has launched a new website designed to help undergraduate students engage in research activities. The website is located at www.purdue.edu/research/Ugrad/.

Created by the Office of the Executive Vice President for Research and Partnerships, the site includes searchable lists of opportunities, learning resources for students and faculty, an option for faculty members to add new research opportunities, and information about the annual undergraduate research symposium.

Additional research opportunities for undergraduate students, both within the University and externally, will be added as they become available.

THE GEO SCIENCES DEPARTMENT AT HAMILTON COLLEGE SEEKS APPLICANTS FOR A TENURE-TRACK ASSISTANT PROFESSOR OF GEO SCIENCES TO BEGIN JULY 2015

The successful candidate for the position must have a Ph.D. in the geosciences with a broad background in sedimentary geology and related field experience. The candidate will be expected to establish a strong scholarly record in sedimentary geology and to advise undergraduate research projects. Teaching responsibilities will include a required course in sedimentary geology, a topical introductory course in geology, and one or more electives in the candidate’s specialty. At least one of the elective courses will contribute to the interdisciplinary Environmental Studies Program as a cross-listed
Geosciences/Environmental Studies course on climate change.

Our program in sedimentary geology is supported by an isotope ratio mass spectrometer with elemental analyzer, a scanning electron microscope with EDS analytical capabilities, a small research vessel for inland lake studies equipped with a variety of sonar and coring devices, a full-time departmental technician, and by four supportive faculty colleagues with diverse research interests.

A candidate interested in the position and who meets these requirements should submit:

1) A cover letter that addresses his/her qualifications for the position
2) A statement describing his/her teaching philosophy
3) A statement of research interests
4) A complete curriculum vitae
5) Letters from three professional referees who know the candidate well and understand the expectations of a competitive liberal arts college.

Your cover letter should address ways in which issues of diversity are brought into your teaching, scholarship, and/or service. Experience teaching or working with diverse student populations is an asset. Candidates should submit these materials to Professor Todd Rayne via Interfolio at http://apply.interfolio.com/25839.

**Review of applications will begin on December 5, 2014 and continue until the position is filled.**

Hamilton (www.hamilton.edu) is a residential liberal arts college located in upstate New York. Applicants with dual-career considerations can find other Hamilton and nearby academic job listings at www.upstatenyherc.org. Hamilton College is an affirmative action, equal opportunity employer and is committed to diversity in all areas of the campus community (www.hamilton.edu/diversity). Hamilton provides domestic partner benefits. Candidates from underrepresented groups in higher education are especially encouraged to apply.

**OTHER NEWS**

**NOW ACCEPTING APPLICATIONS FOR U.S. DEPARTMENT OF HOMELAND SECURITY (DHS) 2015 HS-STEM SUMMER INTERNSHIPS**

The U.S. Department of Homeland Security (DHS) sponsors a 10-week summer internship program for undergraduate and graduate students majoring in homeland security related science, technology, engineering and mathematics (HS-STEM) Disciplines. The program provides students with quality research experiences at federal research facilities located across the country and allows students the opportunity to establish connections with DHS professionals. It is open to students in a broad spectrum of HS-STEM Disciplines and DHS mission-relevant Research Areas.

**Undergraduate students receive a $6,000 stipend plus travel expenses.**

Graduate students receive a $7,000 stipend plus travel expenses.

10-week research experiences are offered at: Argonne, Berkeley, Livermore, Los Alamos, Oak Ridge, Pacific Northwest, and Sandia National Laboratories; as well as at Homeland Security Studies and Analysis Institute, Coast Guard Research and Development Center, Customs and Borders Protection Laboratories and Scientific Services, Domestic Nuclear Detection Office, Federal Emergency Management Agency, Naval Research Laboratory, Engineer Research and Development Center, National Security Technologies Remote Sensing Laboratory, Transportation Security Laboratory, and more.

Areas of research: Engineering, computer science, mathematics, physics, chemistry, biological / life sciences, environmental science, emergency and incident management, social sciences, and more.

**U.S. citizenship required**

**Application deadline: December 22, 2014**

Detailed information about the internships can be found at: http://www.orau.gov/dhseducation/internships/


Previous participants’ testimonials can be found at http://www.orau.gov/dhseducation/internships/stories-hsstem.html

DHS has partnered with the Oak Ridge Institute for Science and Education (ORISE) to manage the program. For questions please email us at dhsed@orau.org

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**YOU ARE CORDIALLY INVITED TO ATTEND SOFTWARE PATENTS IN THE U.S. --- WHAT YOU NEED TO KNOW**

The standards for software patentability, including the *machine-transformation test*, have evolved over the years. This presentation is tailored to inventors, investors and users with interest in software technologies, patents, and copyrights. The sequence of Supreme Court decisions including the most recent decisions (*e.g. Alice Corporation vs. CLS Bank*; 2014) on software-related intellectual property will be reviewed, emphasizing their implications on patenting decisions. Ways to maximize your chances of obtaining a software patent, in light of the recent judicial outcomes will be discussed. Learnings from this seminar will be useful in architecting your software patents to meet the new requirements and guidelines issued by the United States Patent and Trademark Office.
Burton D. Morgan Center for Entrepreneurship
Tuesday, December 9, 2014
Room 121
1201 West State Street
West Lafayette, Indiana
3:00 p.m. – 4:30 p.m.
Refreshments provided

Seminar Speakers:
Hamid R. Piroozi, J.D., Director, IP Disclosure Management & Protection, Office of Technology Commercialization, Purdue Research Foundation
Bobak Jalaie, J.D., Senior Patent Attorney, Office of Technology Commercialization, Purdue Research Foundation
Seating is limited
Please RSVP by December 5th to Sally Ross at saross@prf.org.

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DEFINING INDIANA’S WATER NEEDS: RESEARCH & SOLUTIONS
Hyatt Regency Hotel, One S. Capital Ave.
Indianapolis, IN 46204
December 12, 2014
10:00 a.m.-5:30 p.m.

This daylong event will cover several areas of concern for water related issues in the state of Indiana and a breakout session focusing on addressing and defining Indiana's water research needs. We will welcome speakers from both Purdue and Indiana University as well as environmental and industry guests.

Please join us at the Hyatt Regency Hotel. The hotel is conveniently located in downtown Indianapolis at One S. Capital Ave. the day events will be in the Cosmopolitan room with registration beginning at 10:00 a.m.

This event is free, but registration is required. Please register for the event by December 9, 2014 at noon.

BIRTHDAYS
Nov. 25th  James Ogg
Nov. 29th  Paul Shepson

HAPPY THANKSGIVING!

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 Seldomridge (fseldomridge@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.
Southern South America acts as the only topographic barrier to the southern westerly winds (SWW), which have a profound impact on local to global climate patterns. Along the three thousand kilometers of SWW influence latitudinal disagreement between palaeo-climatic proxies remains, highlighting the complexity of SWW palaeo-behavior. In order to ascertain the nature, strength and position of the SWW over the last glacial cycle a tighter grid of palaeo-climatic proxies is required. Few datasets are available from the transition zone between the hyper humid Patagonian west fjords and the eastern arid steppe, especially where the Southern Patagonian Icefields are situated. In-situ produced cosmogenic nuclides $^{10}$Be and $^{26}$Al are utilized to constrain Patagonian Icesheet thicknesses over the last glacial cycle at the core of the present day SWW belt. Exposure ages along four vertical transects on the flanks of glacier Viedma and Chico, which currently drain the central-eastern portion of the Southern Patagonian Icefield, are presented. Empirical ice thickness constraints from the proximal Cerro Fitz Roy massif and its surrounding glacial valleys will also be discussed. Distinct differences in ice-thickness maxima between both sites are evident. This is a function of glacier catchment size, orientation and glacier response time to climate perturbations. A dataset of re-calculated exposure ages from published Patagonian glacial extent studies is utilized to set the findings into a broader context. Particular reference is made to the timing of glacial maxima across the latitudinal band of SWW influence to track SWW palaeo-shifts and/or variations in intensity over the last glacial cycle.

Thursday, December 4, 2014
3:30 p.m.
Room 1252 HAMP

Refreshments at 3:00 pm
Room 2201/ HAMP
Kuiper Belt Objects (KBOs) have emerged in their critical role to understand the chemical evolution of the Solar System and how the molecular precursors to life formed and came together to create environments such as on early Earth. KBOs are small planetary bodies or biting the sun beyond the planet Neptune, which are among the least modified, most primitive objects in the Solar System. A study of KBOs is important because they are keys to understand the evolution of matter in the early Solar System and are considered as ‘natural time capsules’ at a frozen stage before life developed on Earth. Since dynamical processes exist, which move material residing in the Kuiper Belt into the inner Solar System, this may well play a role in delivering biorelevant molecules to early Earth. As KBOs are windows into the dawn of our Solar System, deciphering the underlying chemistry of KBOs is therefore central to the understanding of the Origins of Life.

In our laboratory, this understanding is achieved by studying the radiation-induced formation of key classes of biorelevant molecules central to the Origins of Life in ices of Kuiper Belt Objects (KBOs) from simple precursor molecules (water, methane, ammonia, carbon monoxide, carbon dioxide, nitrogen, methanol) by reproducing the space environments in a next generation space simulation chamber. Biorelevant molecules are identified on line and in situ by a unique suite of tools which have never been assembled together previously. While functional groups of organic molecules in the condensed phase will be accessible via state of the art infrared, Raman, and UV/VIS spectroscopy, individual biorelevant molecules formed in the ices are probed via isomer-selective reflectron time-of-flight mass spectrometry exploiting soft photo ionization with tunable vacuum ultraviolet light generated via four-wave mixing schemes. Considering that Kuiper Belts have been observed around stars like Fomalhaut and Vega outside our Solar System as well, this knowledge can be transferred to extrasolar planetary systems with Kuiper Belt analog structures thus revolutionizing our understanding of the origin of cosmic life as we know it and eventually revealing the molecular birthplace of life.

This endeavor comes at an exciting time for space exploration. The New Horizons spacecraft is currently en route to Pluto (2015), the most prominent member of the Kuiper Belt; the Rosetta mission is at the very moment orbiting 67P/Churyumov–Gerasimenko – a short period comet from the Kuiper Belt. Both spacecrafts carry out a search for (precursors of) biorelevant molecules. Since Rosetta’s lander Philae touched down on 67P/Churyumov–Gerasimenko, data on the molecular composition of the comet’s surface can be directly compared with the inventory of biorelevant molecules extracted from our experiments thus defining the first inventory of biorelevant molecules, which forms the nucleus for evolution of life in our Solar System billions of years ago.
PURDUE UNIVERSITY
Department of Earth, Atmospheric, and Planetary Sciences
Colloquia – Fall 2014
Thursdays at 3:30 PM, Room 1252 HAMP (unless noted)

Sept. 4  When Engineering Geology Meets Geotechnical Engineering
         Gary Luce, Knight Piesold & Co., AEG President            Host: West
Sept. 9  The Impact of Climate Change and Agricultural Activities on Water
         Cycling in Northern Eurasia
         Yaling Liu, PhD Candidate                                      Advisor: Zhuang
         Tuesday, 4:00PM, Room 2201/HAMP
Sept. 11 The DOE Accelerated Climate Modeling for Energy Project
       Dr. Robert Jacob, Argonne National Laboratory        Host: Harshvardhan
Sept. 18 The Origins of Volatile-rich Solids and Organics in the Outer Solar Nebula
       Prof. Fred Ciesla, University of Chicago              Host: Minton
Sept. 25 Long-term Morphological Changes in Mature Supercell Thunderstorms
       Following Merger with Nascent Supercells
       Prof. Ryan Hastings, Purdue University
Sept. 30 Making Weather and Climate Data More Usable for Agriculture Across
        the U.S. Corn Belt
       Olivia Kellner, PhD Candidate                               Advisor: Niyogi
       Tuesday, 4:00PM, Room 2201/HAMP
Oct.  2 New Perspectives on Tidewater Glacier Mass Change
       Dr. Tim Bartholomaus, University of Texas-Austin        Host: Elliott
Oct.  9 Sulfur Cycling on Mars from a Perspective of Sulfur-Rich Terrestrial Analogs
       Prof. Anna Szynkiewicz, University of Tennessee       Host: Horgan
Oct. 16 Climate Impacts and Extremes in Large Earth System Model Ensembles
       Prof. Ryan Sriver, University of Illinois-Champaign/Urbana Host: Wu
Oct. 21 Towards a Paradigm Shift in the Modeling of Soil Carbon Decomposition
       for Earth System Models
       Yujie He, PhD Candidate                                      Advisor: Zhuang
       Tuesday, 4:00PM, Room 2201/HAMP
Oct. 23 Anthropogenic Signals in InSAR
       Prof. Rowena Lohman, Cornell University                Host: Elliott/Flesch
Oct. 28 Giant Impacts on the Asteroid Vesta
       Tim Bowling, PhD Candidate                               Advisor: Melosh
       Tuesday, 4:00PM, Room 2201/HAMP
Oct. 30 Abiotic and Biogeochemical Controls on Reactive Nitrogen Cycling
       on Boundary Layer Surfaces
       Prof. Jonathan Raff, Indiana University               Host: Shepson

(continued on next page)
Nov.  6  Andean Foreland Basins: A Thermochronologic Perspective on Sediment Provenance, Deformation, and Basin Thermal Histories
Prof. Julie Fosdick, Indiana University  Host: Ridgway

Nov. 11  Profiling Developing Tropical Storm Environments Using GPS Airborne Radio Occultation
Brian Murphy, PhD Candidate  Advisor: Sun/Haase
**Tuesday, 4:00PM, Room 2201/HAMP**

Nov.  13  Shale Gas Development and the Environment
Prof. Mark Zoback, Stanford University  Host: Nowack
**Thursday, 4:00pm, Room 210/MTHW (joint with the Physics Dept.)**

Nov.  20  The Role of Monsoon Circulation on Tropopause Variability
Prof. Yutian Wu, Purdue University

Dec.  4  CSI Patagonia: Tracking Glacial and Climate Dynamics over the Last Glacial Cycle
Alessa Geiger, University of Glasgow  Host: Harbor
You are cordially invited to attend

Software Patents in the U.S. --- What you need to know

The standards for software patentability, including the *machine-transformation test*, have evolved over the years. This presentation is tailored to inventors, investors and users with interest in software technologies, patents, and copyrights. The sequence of Supreme Court decisions including the most recent decisions (*e.g.* Alice Corporation *vs.* CLS Bank; 2014) on software-related intellectual property will be reviewed, emphasizing their implications on patenting decisions. Ways to maximize your chances of obtaining a software patent, in light of the recent judicial outcomes will be discussed. Learnings from this seminar will be useful in architecting your software patents to meet the new requirements and guidelines issued by the United States Patent and Trademark Office.

**TUESDAY, DECEMBER 9, 2014**
Burton D. Morgan Center for Entrepreneurship
Room 121
1201 West State Street
West Lafayette, Indiana
3:00 p.m. – 4:30 p.m.
Refreshments provided

**Seminar Speakers:**
Hamid R. Piroozi, J.D., Director, IP Disclosure Management & Protection, Office of Technology Commercialization, Purdue Research Foundation
Bobak Jalaie, J.D., Senior Patent Attorney, Office of Technology Commercialization, Purdue Research Foundation

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