

Hi everyone, and happy February!

I've got a whole bunch of updates for you below. The biggest news is that the dates for our annual Spring Meeting have been CHANGED to Friday, April 26 and Saturday, April 27, due to space conflicts at Drexel. (The originally intended weekend was their prospective student weekend, April 19-20, and that occupied all suitable rooms.)

It will still be a joint meeting with their Society of Physics Students (SPS) section, and the theme will still be "Communicating Physics". And now our space reservation has been confirmed, so please update your calendars accordingly.

For our Saturday evening plenary, we will be partnering with the Philadelphia Science Festival, with an "Iron Physics Teacher" competition: participants are challenged to use some specific ingredient (e.g. a dollar bill or a marshmallow peep) to communicate a physics concept in 5 minutes or less, and then the audience will vote on the winner. The event will be open to the public and publicized through the Science Festival -- it should be a good thing to invite our students to! We are seeking volunteers to present in the competition.

Here's a summary of the remaining contents of this newsletter:

1. Penn Monthly Outreach Lectures for Science Teachers at LRSM (2/7, 3/14)
2. Penn LRSM Science Cafes in Wilmington and Philadelphia (2/13, 2/18, 3/11, 3/13)
3. Army-funded High-School and Undergraduate Apprenticeship Programs accepting applications (due 4/1/13)
4. Philly EdTech Meetup at Science Leadership Academy (2/12)
5. NASA's Reel Science Communication Contest (open to students until 2/15)
6. AMTA offers Modeling Workshops this summer in PA and NJ (deadline 6/1 for South Jersey Institute)
7. IRIS offers free Active Earth Monitor Kiosk loans (deadline 2/8)
8. Southeastern PA Physics League seeks judges for competition 2/23 at Harriton HS
9. Free CREATE Workshops in June at Hobart & William Smith College (application deadline 2/15)
10. AAPT Physics Bowl (registration deadline 3/4; contest in April)
11. APS Physics Insight Slideshow about careers in Physics now online
12. Useful Links
13. SEPS AAPT online

Please continue to let me know about any exciting events, professional development opportunities, or resources you come across that you'd like to share with the rest of the Southeastern PA Section! I'd especially be interested in getting more resources that will be useful to college faculty, since most of the mailing lists I am personally on pertain to my own grade level, and I'd like this list to be useful for everybody on it.

And as always, please let me know by email (jwaldman -at- archmereacademy.com) if you would like me to change your subscription, or if you have friends or colleagues who would like to be added.

Best,

Jillian Waldman  
Secretary, SEPS AAPT  
AP & Honors Physics Teacher  
Archmere Academy  
Claymont, DE 19703

## **1. PENN OUTREACH LECTURES AT THE LAB FOR RESEARCH ON THE STRUCTURE OF MATTER (LRSM)**

Since 1994, the LRSM has presented a monthly series of materials-based lectures during the school year to science teachers. These are given by faculty and staff associated with the LRSM. The lectures are free, take place on Thursday evenings at 5:30 pm and are followed by food and refreshments during which teachers can engage the speaker in conversation about the talk or other aspects of education. Teachers can also receive Act 48 credit. The theme for this year's lectures is "Advanced Materials: Synthesis, Characterization, and Properties."

All lectures take place at the LRSM, which is located at 3231 Walnut Street, in Philadelphia.

Upcoming lectures include:

- February 7 -- Gene Mele, Physics and Astronomy "The New Spin on Insulators"
- March 14 -- Ivan Dmochowski, Chemistry "Supramolecular Chemistry with Xenon"
- April 4 -- Karen Winey, Materials Science and Engineering "Supramolecular Chemistry with Xenon"

More information is available at the link below, and in the attached PDF. If you are interested in attending, please contact Andrew R. McGhie at 215-898-6461 or at mcghie -at- lrsm.upenn.edu. <http://www.lrsm.upenn.edu/outreach/teachers.htm>

## **2. PENN OUTREACH SCIENCE CAFE PROGRAM FROM LAB ON THE RESEARCH OF THE STRUCTURE OF MATTER**

In October 2010, the LRSM (see above) also began a monthly series of materials-based Science Cafes. These are popular science talks on specific aspects of materials, such as fuel cells or solar power, given by affiliated faculty at a local restaurant or bar in a relaxed setting conducive to setting up a dialogue between the speaker and the audience. These talks begin at 6:30 PM, and are open to the general public, not just to science teachers. The 2012-2013 series has two primary regional locations -- at Stoney's British Pub in Wilmington, Delaware, and at the World Cafe Live in Philadelphia.

Upcoming talks include:

February 13, 2013 -- Larry Hough, Rhodia Inc.

"Future Water Shortages: Resolution through Science and Technology"

2012 was the hottest recorded year on the planet. It is well predicted that water stress will be a key issue for the future development of the human population. In the next 20 years we need to produce more food than has been produced in the last 10000 years. In this context, we will discuss water stress in agriculture and natural solutions to the problem. With the addition of chemically modified natural soil additives, we will show that better germination and drought resistance can be achieved for crops. As the population grows and the drought

cycles become more frequent, creative solutions will be required to sustain even the most fertile lands.

6:30 PM, World Cafe Live, 3025 Walnut Street, Philadelphia PA

February 18, 2013 -- Mark Jones, Fraunhofer Center for Biomolecular Technology, Newark, DE

"Plants for better health: The role of plant biotechnology in the generation of new vaccines and therapeutics."

6:30 PM, Stoney's British Pub, 3007 Concord Pike, Wilmington DE

March 11, 2013 -- Jennifer Maas, Conservator, Winterthur Museum, DE

"Using synchrotron radiation to study Matisse: Hand-held x-ray fluorescence in Art & Archaeology"

6:30 PM, Stoney's British Pub, 3007 Concord Pike, Wilmington DE

March 13, 2013 -- Peter Collings, Physics, Swarthmore College

"Liquid Crystals: An Oxymoron Necessary for Life and the Basis of Modern Displays"

Liquid crystals are a phase of matter just like the more familiar phases of matter (solids, liquids, and gases). Yet the properties of liquid crystals are so unique that they are both the fundamental building blocks of biological structure and the basis for the displays found in laptop computers and flat panel televisions (LCDs). The reason for these extraordinary properties is that liquid crystals represent a natural, delicate balance between the absence of all molecular ordering found in liquids and the high degree of molecular ordering found in solids. Additional applications are already in use and more are on the way.

6:30 PM, World Cafe Live, 3025 Walnut Street, Philadelphia PA

For more information, see the attached PDF, or check out the LRSM's website:

<http://www.lrsml.upenn.edu/outreach/sciencecafe.html>

### **3. ARMY-FUNDED HIGH SCHOOL & UNDERGRADUATE APPRENTICESHIP PROGRAMS ACCEPTING APPLICATIONS**

<http://www.usaeop.com/programs/HSAP/index.htm>

The High School Apprenticeship Program (HSAP) is a commuter program for high school juniors and seniors who demonstrate an interest in science, technology, engineering, or mathematics (STEM) to work as an apprentice in an Army funded university research laboratory. Students apprentice with experienced scientists and engineers full-time during the summer or part-time during the school year.

Likewise, the Undergraduate Research Apprenticeship Program (URAP) has the SAME description and the SAME application form.

Students should apply online NOW, and specify which HSAP/URAP locations they are interested in. The nearest locations to Philadelphia include Penn State and the University of Delaware, but students may have relatives with whom they could stay for the summer in other locations. All applications are due by 1 April 2013. Don't wait: apply NOW!

GOALS: Provide hands-on research experiences to high school and undergraduate college students; Educate students about the Army's interest and investment in science; Foster mentorship by a university researcher; Inspire students to continue pursuit of STEM interests.

Another Army program at Penn State and other universities nationwide is the JUNIOR

## SCIENCE AND HUMANITIES SYMPOSIA

<http://www.usaeop.com/programs/JSHS/locations.htm>

It "promotes original research and experimentation in the sciences, engineering, and mathematics at the high school level". Students compete in a regional symposium by orally presenting the results of their original research. Teachers participate with them. It "encourages the success of high school teachers in addressing the attainment and mastery of state and national performance and process skills standards ..."

### 4. PHILLY EDTECH MEETUP FEBRUARY 12TH AT SCIENCE LEADERSHIP ACADEMY

Building a New Tech Corridor: a panel discussion at the Science Leadership Academy

A Special Evening Hosted by the Philly EdTech Meetup

Join the Philly EdTech Meetup for a unique panel discussion featuring distinguished voices in the tech and edtech fields. The conversation will be focused around the burgeoning tech scene in the Northeast Corridor and the role that education and edtech industries play in it.

<http://www.smores.com/yw02>

WHEN: Tuesday, Feb 12th, 6:30-8:30pm

WHERE: 55 North 22nd Street, Philadelphia, PA

The panel will begin at 6:30pm with a Q&A and networking afterwards. Come early to get a good seat! You can register at: <http://www.meetup.com/The-Philadelphia-EdTech-Meetup-Group/events/96684162/>. Registration does not guarantee you a seat!

### 5. NASA'S REEL SCIENCE COMMUNICATION CONTEST

Audience: 9-12 Educators and Students

Deadline: Feb. 15, 2013

So you want to be a NASA producer? NASA is looking for talented high school students to create videos that engage students in earth science.

Students are consuming over 10 hours of media each day, and video is increasingly important to reach and engage this audience about science. NASA earth science missions are kicking off a new video contest challenging high school students to produce a two-minute video for middle school students. The videos should focus on one of three topics: Ozone in the Stratosphere, Ship Tracks and Our Environment, or The Water of the Water Planet.

Winning videos will be posted on NASA's website. Winners will also get the opportunity to be a NASA producer working with NASA scientists and communication experts in July 2013 to produce an earth science feature video.

The deadline for submitting videos is Feb. 15, 2013.

For more information and instructions for submitting a video, visit

<http://aura.gsfc.nasa.gov/reelscience>

Questions about this contest should be emailed to Ginger Butcher at [ginger.butcher-1-at-nasa.gov](mailto:ginger.butcher-1-at-nasa.gov)

### 6. MODELING WORKSHOPS OPEN THIS SUMMER IN NJ AND PA SEPS AAPT ONLINE

The American Modeling Teachers Association (AMTA) is sponsoring a number of workshops this summer for Biology, Chemistry and Physics teachers interesting in learning more about Modeling Instruction. A listing of these workshops can be found at:

<http://modelinginstruction.org/teachers/workshops-2013/> The AMTA website also contains other information pertaining to modeling instruction.

The Spring meeting will also feature a mini-workshop on Modeling, which will be an excellent opportunity to learn more about this effective instructional strategy.

I've attached the flyer and the application for the closest Modeling Workshop to Philadelphia, which I (Jillian) actually attended last summer, at Clearview Regional High School in New Jersey, near Rowan University. It was a FREE, interesting, and useful experience, and helped me rethink some of how I teach first-year physics. CRHS is about a forty-minute drive from my house near Center City. Workshops are also available for Chemistry and Biology, although the Physics program is the oldest and most thoroughly developed.

**Gwendolyn Hehemann** <[wendy -at- modelinginstruction.org](mailto:wendy-at-modelinginstruction.org)> is the outreach person for the Modeling Workshops, and can also answer any questions you might have.

## **7. IRIS OFFERS FREE ACTIVE EARTH MONITOR KIOSK LOANS**

The Incorporated Research Institutions for Seismology (IRIS), working in coordination with NSF's EarthScope USArray Transportable Array seismic observatory, is pleased to announce a new round of Active Earth Monitor Kiosk Loans. In this round of loans, IRIS will send you a ready to run, floor standing, interactive touch screen, Active Earth Monitor Kiosk for a free one year loan period. The Active Earth Monitor has over 85 pages of earth science content including EarthScope, Cascadia, Basin and Range, New Madrid Seismic Zone, and general seismicity. Many of the pages pull in live data (worldwide earthquakes, US earthquakes, regional earthquakes, GPS plate boundary motion).

Applications in this round are being accepted from formal and informal education organizations in Florida, Georgia, South Carolina, North Carolina, Virginia, West Virginia, Maryland, Delaware, Pennsylvania, New York and Washington, DC.

The deadline for applying is February 8, 2013.

The loan program is in cooperation with EarthScope's USArray Transportable Array: a dense array of seismometers designed to study the structure and evolution of the North American Continent. The Transportable Array is a network of 400 high-quality broadband seismometers that are being placed in temporary sites across the conterminous United States from west to east in a regular grid pattern. With station spacing of about 70 km, Transportable Array data is extremely useful for mapping the structure of Earth's interior. After a residence time of two years, each instrument is picked up and moved to the next carefully selected location on the eastern edge of the array. When in your state, a USArray Transportable Array station will be no more than 35 km from you facility. USArray will be deployed on the east coast from 2013 through 2015.

To learn more and to apply, visit our website here:

[http://www.iris.edu/hq/index.php/site/PAGE\\_static/1540/](http://www.iris.edu/hq/index.php/site/PAGE_static/1540/) To learn more about the IRIS Active Earth Monitor, visit our website here:

[http://www.iris.edu/hq/programs/education\\_and\\_outreach/museum\\_displays/active\\_earth](http://www.iris.edu/hq/programs/education_and_outreach/museum_displays/active_earth)

If you have further questions, you can contact Patrick McQuillan, IRIS's Education and Outreach Specialist in Washington, DC, at [mcquillan -at- iris.edu](mailto:mcquillan-at-iris.edu) or [202-682-2220 ext 126](tel:202-682-2220).

## **8. SOUTHEASTERN PA PHYSICS LEAGUE SEEKS COMPETITION JUDGES**

The Southeastern Pennsylvania Physics League is holding its final competition on Saturday, February 23rd, at Harriton High School. The League is looking for some help for the final event of the competition, known as the Physics Relay. About eight people with a knowledge of physics, (i.e., physics teachers) are needed to help judge the event by checking the correctness of problems that the competing students must solve as part of the relay. If you could volunteer to help, you would meet in the main gym of Harriton High School at 10 AM on that Saturday morning, though you could drop by sooner if you'd like to

see some of the other events...perhaps even get some ideas for your own classes. If you are willing to help out, please contact Bob Schwartz at [schwarr -at- lmsd.org](mailto:schwarr-at-lmsd.org). Thank you very much!

## **9. FREE JUNE WORKSHOPS ABOUT "CREATE" STRATEGY AT HOBART & WILLIAM SMITH COLLEGES**

The C.R.E.A.T.E. (Consider, Read, Elucidate the hypotheses, Analyze and interpret the data, and Think of the next Experiment) strategy is a new teaching approach that seeks to transform the learning environment of an undergraduate course to model the creativity, complexity, and excitement of the scientific process. The methodology achieves this goal through the directed reading of primary literature within a field.

Two (identical) workshops will be held in June of 2013 at Hobart and William Smith Colleges, located in Geneva, New York. We invite applications from science faculty at colleges/universities and community colleges; postdoctoral fellows are welcome to apply if teaching in the academic year following the workshop. All expenses, except travel, will be covered by an NSF grant. Further details and application can be found at <http://www.teachcreate.org/>. Deadline for application is February 15, 2013.

## **10. AAPT PHYSICS BOWL REGISTRATION NOW OPEN**

Registration is open for the 2013 PhysicsBowl taking place April 3 - April 17, 2013. The registration deadline is March 4, 2013.

Michael Faleski, PhysicsBowl Coordinator and Associate Professor of Physics at Delta College, and the PhysicsBowl Advisory Board are seeking physics educators interested in joining the Board and assisting in preparing the exams. This is a fun and unique way of getting high school students excited about physics. If you are interested in joining the PhysicsBowl Advisory Board, please send a message expressing your interest to [eo -at- aapt.org](mailto:eo-at-aapt.org).

For more information, or to register for the Physics Bowl:

<http://www.aapt.org/Programs/contests/physicsbowl.cfm>

## **11. APS PHYSICS INSIGHT SLIDESHOW ABOUT CAREERS IN PHYSICS**

The January 2013 edition of the Physics InSight slideshow is now available at:

<http://www.aps.org/careers/insight/download.cfm>

As in previous editions, the January 2013 slideshow includes lots of colorful slides on diverse physics careers and topics. New material in this month's edition includes:

- Profiles of Brent Wouters, a physicist and aeronautical engineer who worked as CEO and CFO for an aircraft company; James Kakalios, a condensed matter physicist who is also a physics consultant for superhero movies; and SPS 2011 Intern Heather Petroccia who spent a summer solving time-dependent breakdown in electronic devices at NIST.
- New data highlighting skills and salaries of physics Bachelors and PhDs in the workforce.
- Information on neutrino oscillations, coloring metal with light interference, the physics of flight, and more!

## **12. LINKS**

Want to integrate news articles and figures into your physics class? Check out this

webpage of physics applications in the New York  
Times: <http://cisephysics.homestead.com/files/NYT.htm>

**13. SEPS AAPT ONLINE:**

For news, upcoming events, and photos of past events, check out the SEPS AAPT web presence online and on Facebook!

**Website:** <http://www.physics.upenn.edu/~aapt/>

**Facebook:** <https://www.facebook.com/?ref=logo#!/group.php?gid=166735829132>