

Hi! I hope this newsletter finds you cool and dry, despite all the heat and humidity, and that you're having a good summer!

I wasn't able to attend the national AAPT's summer meeting in Portland this year, but Fran Poodry was one of the official "Twitter Ambassadors", posting information and updates throughout the conference. (Click here for more information about National AAPT's social media outreach: <http://www.aapt.org/Conferences/SM2013/Social.cfm>) I hope those of you who managed to go enjoyed it!

I also have another note from Fran, who served as president of the SEPS AAPT section a few years ago -- she was in fact the person who got me involved in the organization when I moved here! She's leaving the area to take a position at Vernier; I've included her farewell to SEPS below. (Relatedly, there is a job opening at West Chester East High School.)

Here's the full list of the contents of this newsletter:

1. A farewell note from Fran Poodry
2. Penn State seeks teachers to review Environmental instructional materials (paid, 1 day during week of 8/8-8/14)
3. Opportunity to playlets Google Play for Education
4. NASA Exploration Design Challenge (deadline 3/14/14)
5. SEPS ambassadors at AAPT National Meeting (past, July 13-17)
6. Opening for adjunct physics instructor at University of the Sciences (posted 6/19)
7. Opening for Physics Teacher in West Chester School District (posted 6/27)
8. Opening for Adjunct Faculty at Thomas Jefferson University (posted 6/10)
9. Full-time opening for Senior Lecturer at Penn State Harrisburg (posted 5/21)
10. Job opening for Physics teacher at Jack M Barrack Hebrew Academy (posted 5/13)
11. Free Materials Science Workshops for teachers at Penn LRSM (8/8 and 8/9)
12. 2013 Lunar workshops for Educators in Greenbelt, MD (6/24-28, 7/8-12)
13. Online Interactive Multivariable Calculus Course (Fall 2013)
14. Online Resources about the International Space Station
15. Aerospace Education Services Project offers free Webinars (June-August)
16. NASA/LEGO Design & Build Competition (deadline 7/31)
17. Save the date for CSAAPT's Fall 2013 Meeting (11/8-9)
18. Cool physics links: Star Size Comparison HD, Daniel Russell's vibration simulations, Walking robots, Cassini images
19. 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'm especially 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](mailto: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  
Science Teacher  
Archmere Academy  
Claymont, DE 19703

### 1. A FAREWELL NOTE FROM FRAN POODRY

Fran writes:

Friends, I am sad to leave the SEPS community but excited to be starting a new job at Vernier Software and Technology! I will be starting off answering teacher questions on the phone or by e-mail, so give me a couple of weeks to get up to speed on everything and then I will be able to help you when you run into trouble with your Vernier equipment. I have been hired in the hopes that I will become the resident expert in Physics First and AP Physics (1&2 and C) (among other things) so if you have particular things you would like to tell me regarding labs or equipment you would like to see from Vernier that particularly address those curricula, please let me know! I am also open to hearing your suggestions (or complaints!) regarding current software or equipment. I will remain reachable at my personal e-mail address: fpoody AT gmail DOT com and on my Twitter @MsPoody. If you ever make it out to Portland, OR, be sure to take the MAX Blue Line out to Vernier in Beaverton and I will gladly give you a personal tour!

### 2. PENN STATE SEEKS TEACHERS TO REVIEW ENVIRONMENTAL INSTRUCTIONAL MATERIALS (Paid, 1 day during week of 8/8-8/14)

Middle and high school science and geography teachers are requested to provide their expertise and advice on educational materials. Information about the program is listed below. Please contact Meg ( [Margaret.winchester-at-gmail.com](mailto:Margaret.winchester-at-gmail.com) ) or Brian ( [bhk2-at-psu.edu](mailto:bhk2-at-psu.edu) ) with questions or if you'd like to participate.

What

A 1-day teacher session to provide your expert advice on educational materials which have been developed for Pennsylvania schools and the My Community Our Earth (MyCOE) initiative. Teachers would receive \$200 for their time and a hotel room the night before if necessary.

Where

Penn State: UP Campus for 1-day (9 am – 4pm) during the week of August 8-14, 2013.

How

Materials would be sent to the participants in advance and asked to come prepared to provide feedback on the quality, fit to standards, potential integration with

Pennsylvania schools, and suggestions for improvement. The developers do not want to generate content that would not be used in the classroom, so expert advice at this early stage would be invaluable in guiding their development of the educational units.

The units address West Nile Virus and environmental justice to get students to think about human relationships with the social environment and how this influences the spread of disease and possibilities for human health.

They are open to making changes and intend to create at least one additional unit and would be looking for topics that would be particularly useful for teachers. There is a possibility to help test some of the units in their own classrooms during academic year 2013-2014, which would provide developers with the opportunity to make changes based upon their experiences with the materials.

#### Other Information

The creation of these educational materials is part of a larger National Science Foundation funded research project on health and environment interactions. The research that is occurring within South Africa is examining the relationships between disease, health-decision making, and environmental resource patterns. We are focusing upon HIV in particular, however this falls within a larger framework that considers human health in a broad and holistic manner. The educational units that are being created do not focus upon HIV or South Africa at this time; rather, they are intended to provide an educational expansion of the research project. As such, we have created units that address West Nile Virus and environmental justice to get students to think about human relationships with the social environment and how this influences the spread of disease and possibilities for human health.

### **3. OPPORTUNITY TO PLAYTEST GOOGLE PLAY FOR EDUCATION**

Google is rolling out a new program for schools called Play for Education. The presentation is available at <http://www.youtube.com/watch?v=U5d6SjmU7MI>, but the summary is that Play for Education allows teachers to manage their students tablets en masse, including restricting unwanted content and distributing educational apps. They are currently looking for new schools to use these tools in the next school year. They haven't told us exactly what this would entail, but it's probably free or subsidized software and hardware in exchange for your feedback.

If you or your school are interested, the link to apply is: <http://www.google.com/edu/android/>

### **4. NASA EXPLORATION DESIGN CHALLENGE**

Audience: K-12 Educators and Students

Virtual Crew Registration Deadline: March 14, 2014

Students from Kindergarten through 12th grade will have the opportunity to play a unique role in the future of human spaceflight through participation in NASA's Exploration Design Challenge, or EDC. NASA EDC invites students around the world to think and act like scientists in order to overcome one of the major hurdles of deep space long-duration exploration -- the dangers associated with space radiation. Students taking part in the challenge will discover how to plan and design improved radiation shielding aboard the

Orion Multi-Purpose Crew Vehicle, currently being developed by NASA, Lockheed Martin and other partners to carry astronauts to space, venturing farther than humans have ever gone before.

Through a series of science, technology, engineering and mathematics, or STEM, engagement activities, students in grades K-8 will analyze different materials that simulate space radiation shielding and recommend materials that best block radiation and protect astronauts. Students in grades 9-12 will think and act like engineers as they apply what they learn to design shielding to protect a sensor on the Orion crew module from space radiation. After a review of the design solutions submitted by teams in the grades 9-12 challenge, five finalist teams will be selected and matched with a mentor from NASA to test their designs in a virtual simulator. The winning team will build a prototype radiation shield that will be analyzed and submitted to Lockheed Martin for flight certification on the inaugural flight of the Orion Exploration Flight Test, or EFT-1.

The five U.S. finalist teams from the grades 9-12 challenge will be invited to attend the EFT-1 launch, currently scheduled for November 2014. The names of all students, grades K-12, participating in the NASA EDC will fly aboard the spacecraft as honorary virtual crewmembers for Orion's first flight. The deadline to register students for the virtual crew is March 14, 2014.

For more information and to register online, visit <http://www.nasa.gov/education/edc>. For more information about Orion, visit <http://www.nasa.gov/orion>. Email any questions about this opportunity to [nasaedc -at- nianet.org](mailto:nasaedc-at-nianet.org).

#### **5. SEPS AMBASSADORS AT AAPT NATIONAL MEETING**

The 2013 AAPT Summer Meeting was held this July 13-17 in Portland, Oregon at the Hilton Portland and Executive Tower with weekend workshops at Portland State University. The theme was "Going Green with Portland". Much more information is available here: <http://www.aapt.org/Conferences/SM2013/>

Fran Poodry and some other educators were serving as social media ambassadors for the summer meeting. If you didn't get the eNNOUNCER, this is the link to more information about this program:

<http://www.aapt.org/Conferences/SM2013/Social.cfm>

#### **6. OPENING FOR ADJUNCT PHYSICS INSTRUCTOR AT UNIVERSITY OF THE SCIENCES**

The Department of Mathematics, Physics and Statistics at University of the Sciences in Philadelphia (USciences) is seeking to hire an individual for a part-time, one semester (renewable) Adjunct Instructor position beginning in Aug 2013.

Classes to teach: Introductory Physics Lab(s)

Degree Required: MA or MS required; PhD preferred

Applicant Qualifications: Minimum requirement is 18 graduate hours in Physics.

Job Summary: Teach assigned sections and curriculum as scheduled. Provide each student with a clearly written syllabus. Maintain class rolls. Provide reasonable on-campus access to students outside of class. Submit grades on schedule.

How to apply: Submit a letter of application, resume, official transcripts, and the names and phone numbers of at least three professional references to: Dr. Elia Eschenazi, Chair of the Department of Mathematics, Physics and Statistics. Email applications may be submitted to [physics -at- uscience.edu](mailto:physics-at-uscience.edu).

## **7. OPENING FOR PHYSICS TEACHER IN WEST CHESTER SCHOOL DISTRICT**

West Chester East High School is in need of another physics teacher! Only online applications are accepted at <http://home.wcasd.net> (click on "employment" on the left side of the page). If the position is not listed, contact Science Supervisor Paul Joyce at pjoyce AT wcasd DOT net.

## **8. OPENING FOR ADJUNCT FACULTY AT THOMAS JEFFERSON UNIVERSITY**

Job Title: Physics Adjunct Instructor at Jefferson Graduate School of Biomedical Sciences

Responsibilities Thomas Jefferson University is seeking adjunct faculty members with extensive experience in undergraduate teaching for appointments in the new Postbaccalaureate Pre-Professional Program. The program is designed for students with non-science undergraduate degrees to complete the pre-requisite courses for health professions schools in an accelerated one-year format or a two-year format. Current needs include faculty lecturers for Physics. Physics courses will consist of (2) 1.5-hour lectures and (1) 2-hour lab per week over the course of (2) 12-week terms. Both lectures and lab sessions will be held during the day.

### Position Requirements

- Terminal degree in a scientific field (preferably, in one of the core sciences).
- A strong track record of teaching undergraduates in lecture and lab in the basic sciences at the community college or 4 year college/university level is mandatory.\*
- Solid written and oral communication skills. Faculty members in the program may need to compose letters of recommendation for students.
- Must be comfortable using technology to complement in-classroom teaching.
- For Physics applicants: Experience with online laboratory simulations preferred, especially simulation suites such as PhET from the University of Colorado (<http://phet.colorado.edu/en/search?q=physics>).

\*Please note that candidates without undergraduate teaching experience will not be considered for the position. Research experience and publications will not be viewed as a substitute for undergraduate teaching experience.

Interested candidates should apply online at Thomas Jefferson University Office of Human Resources with Job ID #112341. Individuals should include a CV and a one-page cover letter when applying.

## **9. FULL-TIME OPENING FOR SENIOR LECTURER AT PENN STATE HARRISBURG**

Penn State Harrisburg, School of Science, Engineering, and Technology invites applications for a full-time, non-tenure track Senior Lecturer/Lecturer position in Physics effective August 2013. The successful candidate is expected to teach a broad range of undergraduate Physics, Astronomy, and/or Earth Science courses and laboratories. In addition, all full-time faculty are expected to engage in scholarly activities, participate in University/College/Program and professional service activities, and advise undergraduate students. The minimum qualification is a Ph.D. in Physics or a closely related discipline plus relevant experience. Preference will be given to individuals who have demonstrated a commitment to excellence in college teaching. Information about the College may be found at [www.hbg.psu.edu](http://www.hbg.psu.edu). This is a fixed-term appointment eligible for continuation.

Applicants should submit current curriculum vitae, three letters of reference, and a personal statement of teaching philosophy to Physics Senior Lecturer/Lecturer Search Committee, c/o Mrs. Dorothy J. Guy, Director of Human Resources, Penn State Harrisburg, Box AAPT-39576, 777 W. Harrisburg Pike, Middletown, PA 17057-4898 or via email to [HBG-HR -at- LISTS.PSU.EDU](mailto:HBG-HR-at-LISTS.PSU.EDU). Position is open until filled. Employment will require successful completion of background check(s) in accordance with University policies. Review of applications will begin immediately and continue until the position is filled. Penn State is committed to affirmative action, equal opportunity and the diversity of its workforce.

#### **10. JOB OPENING FOR PHYSICS TEACHER AT JACK M. BARRACK HEBREW ACADEMY (posted 5/13)**

The Jack M. Barrack Hebrew Academy located in Bryn Mawr, PA, has a full time opening for a science teacher starting September 2013. The teaching load will include 3 Middle School Science classes and one High School Chemistry class. Experience is preferred. Based upon the applicants, the position may be split into two part time teaching positions. Send a cover letter and resume to [raugust -at- jbha.org](mailto:raugust-at-jbha.org)

#### **11. MATERIALS SCIENCE WORKSHOPS FOR TEACHERS AT PENN LRSM**

The Laboratory for Research on the Structure of Matter (LRSM) at the University of Pennsylvania will offer three, free, one-day materials science workshops for Delaware Valley school teachers. The workshops will enable teachers to improve their knowledge of materials science and learn how to perform middle/high school level materials science laboratory experiments, which illustrate many concepts in this field.

The workshops are based on an elective materials science course offered to students at Central High School, Philadelphia, by Schuyler Patton, a chemistry teacher at the school, who has worked with LRSM faculty to develop the course, which is currently going into its sixth year of operation and has expanded to two sections, serving 66 students.

The workshops offered will cover three areas of materials properties: The first workshop will deal with both mechanical and thermal properties of materials, and the second and third will be directed to exploring preparation and properties of food and culinary materials in the kitchen. Emphasis will be placed on simple, low cost experiments.

Teachers may sign up for one or more workshops, which can all be taken individually. These workshops are planned for Friday, July 26, 2013 (Introduction to Materials Science), Thursday, August 8 (Culinary Materials Science I), and Friday, Aug. 9, 2013 (Culinary Materials Science II) The workshops will be restricted to ~10-12 participants each, but if sufficient interest is shown by teachers, other workshops may be scheduled to meet the demand. The workshops will start at 9:30 am and end at 4:30 pm with a break for lunch. Faculty for the course will include Schuyler Patton and Prof. Russ Composto, MSE. A brief tour of the materials science Shared Experimental Facilities at the LRSM will be included as will lunch. Certificates of

Participation will be presented for Act 48 credits.

A brief outline of each workshop will be available soon. To register for the course, send an e-mail to Dr. Andrew R. McGhie, Associate Director, LRSM, [mcghie@lrsm.upenn.edu](mailto:mcghie@lrsm.upenn.edu), indicating which workshops are requested. You should include your name, school, subjects taught, grades taught, years teaching, and e-mail and phone contact information. For further information call (215) 898-6461 or e-mail [mcghie@lrsm.upenn.edu](mailto:mcghie@lrsm.upenn.edu).

Dr. McGhie's latest email indicates that the July 26 workshop is full, but there are still spots available in the two August workshops.

12.

### 13. ONLINE INTERACTIVE MULTIVARIABLE CALCULUS COURSE

David Abineri, an AP Physics teacher, is offering an online Multivariable Calculus course next fall:

Students and Faculty, a **Multivariable Calculus** class is being offered again next year from September 2013 to May 2014. Ideal for students completing AP Calculus before the senior year and for faculty who might want to brush up on the subject.

This will be an online, totally interactive classroom **NOT just 'watch and work'**. There will be real discussions on all the major topics in such a way as to end up with a deep understanding of the subject.

Please pass on to friends, students and colleagues.

Class size will be limited, first come first served, all details at: <http://calculusnow.blogspot.com/>

### 14. ONLINE RESOURCES ABOUT THE INTERNATIONAL SPACE STATION

International Space Station Science: Get up to Speed and in the Know!

As educators you bring the excitement of science and exploration to your students each day in the classroom. But how can you find the latest information about what is taking place aboard the International Space Station, or ISS, especially with all of the science and research taking place every day? Here are five effective ways you can keep current and feel more confident in talking to students about the space station and what is happening in the orbiting laboratory.

1.) Subscribe to the ISS Program Science Listserv. Subscribers receive twice-weekly emails with compelling stories about important space station research conducted each day.

<https://lists.nasa.gov/mailman/listinfo/iss-program-science-group>

2.) Read the information-rich ISS Research and Technology Web page (<http://www.nasa.gov/iss-science/>) and the engaging ISS research blog, A Lab Aloft (<http://go.usa.gov/atl>).

3.) Know the ISS research benefits for humanity. Find them at [http://www.nasa.gov/mission\\_pages/station/research/benefits/](http://www.nasa.gov/mission_pages/station/research/benefits/).

4.) Follow timely ISS research updates on Twitter ([https://twitter.com/ISS\\_Research](https://twitter.com/ISS_Research)) and Facebook (<https://www.facebook.com/ISS>).

5.) Learn how to get research aboard the ISS (or refer those interested) [http://www.nasa.gov/mission\\_pages/station/research/ops/research\\_information.html](http://www.nasa.gov/mission_pages/station/research/ops/research_information.html).

Questions about space station research and guidance on where to find additional information should be directed to the ISS Research Helpline at

[jsc-iss-research-helpline -at- mail.nasa.gov](mailto:jsc-iss-research-helpline@mail.nasa.gov)

## **15. AEROSPACE EDUCATION SERVICES PROJECT OFFERS FREE WEBINARS**

The Aerospace Education Services Project is presenting a series of free webinars throughout Summer 2013. All webinars can be accessed online. Join aerospace education specialists to learn about activities, lesson plans, educator guides and resources to bring NASA into your classroom. For more information about these webinars, and to see a full list of webinars taking place through August 2013, visit

<http://aesp.psu.edu/programs/webinars/> .

Questions about this series of webinars should be directed to Chris Gamrat at [gamrat -at- psu.edu](mailto:gamrat@psu.edu).

## **16. NASA/LEGO DESIGN AND BUILD COMPETITION**

Audience: Anyone Age 13 or Older

Entry Deadline: July 31, 2013

NASA and the LEGO Group are partnering to inspire the next generation of aerospace engineers by offering a new design competition. The competition will spur students of all ages to use the toy bricks in building models of future airplanes and spacecraft.

The "NASA's Missions: Imagine and Build" competition is now open with an entry deadline of July 31, 2013 . Winners in each category will be selected by a panel of NASA and LEGO officials and announced Sept. 1, 2013.

The first category in the contest is "Inventing Our Future of Flight." In this challenge, participants will design and build their idea for an aircraft of the future based on real concepts and new technology NASA's aeronautics innovators are working on to increase fuel efficiency and reduce harmful emissions and noise.

In addition to building a model from LEGO bricks or using the LEGO Digital Designer computer program, participants in this category also must prepare and write a technical paper. The paper will explain how the contest design takes advantage of NASA's ideas and potentially improves on them.

This category divides entrants into two groups: young student builders ages 13 to 18 and an open group for anyone age 13 and older. The two winners will receive a custom-made LEGO trophy and a collection of NASA memorabilia.

The second contest category is "Imagine Our Future Beyond Earth." In this challenge, participants will use their imaginations to design and build a futuristic vehicle from LEGO bricks that might travel through the air or in space. It could be an airplane, rotorcraft, rocket, spacecraft, satellite, rover or something else. The design can be based in reality or purely a flight of fancy. This competition is open to entrants 16 or older. The grand prize is a LEGO set signed by the set's designer and a collection of NASA memorabilia. There also is a runner up prize.

To read the complete rules and guidelines for submitting the LEGO model and technical paper, visit <http://rebrick.lego.com/> .



LEGO Systems, Inc. is the North American division of The LEGO Group, a privately-held, family-owned company based in Billund, Denmark. The company is one of the world's leading manufacturers of creatively educational play materials for children. For more information and to visit the virtual LEGO world, go to <http://www.LEGO.com> .

For more information about NASA aeronautics research and space exploration, visit <http://www.nasa.gov> .

## 17. SAVE THE DATE FOR CSAAPT'S FALL 2013 MEETING

Our southern neighbors in the Chesapeake Section of the AAPT (<http://www.csaapt.org/>) have set the date for their 2013 Fall Meeting. The meeting will be Friday-Saturday, November 8-9, 2013 in Virginia Beach, VA. The local contact will be David Wright ([dwright -at- tcc.edu](mailto:dwright-at-tcc.edu)) of Tidewater Community College. The conference hotel is the Barclay Towers (809 Atlantic Beach Avenue), right on the oceanfront. To make reservations, call and ask for the AAPT block of rooms. This block will be reserved until about a month prior to the meeting. The price including all taxes will be \$78.97.

Friday's events will include a workshop (topic TBD) and a 3D planetarium show "Dawn of the Space Age" at the Tidewater Community College Planetarium. On Saturday, there have contributed talks and demos, along with a luncheon with a guest speaker.

The contact person for the CSAAPT in general is Dr. Rhett Herman, Professor of Physics at Radford University, and communications officer for the CSAAPT. The Chesapeake Section serves the states of Delaware, Maryland, and Virginia.

## 18. COOL LINKS

Nicely rendered video comparing the sizes of objects -- planets, stars, etc -- in our universe:

[https://www.youtube.com/embed/XE0aAZE0kp4?feature=player\\_embedded](https://www.youtube.com/embed/XE0aAZE0kp4?feature=player_embedded)

Daniel Russell at PSU has a nice set of simulations about modes of vibrations and related concepts here:

[www.acs.psu.edu/drussell/Demos/string/fix.html](http://www.acs.psu.edu/drussell/Demos/string/fix.html)

Jillian Waldman has been working at the University of Delaware this summer, learning about models for walking. The simplest model for walking is an inverted pendulum, with a mass pivoting around one foot, then switching to pivot around the next foot as it swings down. One of the fun websites she's come across has been this collection of videos of dynamic passive walking from a Japanese university -- robots with no motors that can walk anyway: [http://fujimoto.mech.nitech.ac.jp/fujimoto/sano/walk\\_eng.html](http://fujimoto.mech.nitech.ac.jp/fujimoto/sano/walk_eng.html)

Did the internet tell you to wave at Saturn as the Cassini probe took images? Here's the result, Cassini's photo of the earth:

[http://apod.nasa.gov/apod/image/1307/earth\\_cassinimessenger\\_1799.jpg](http://apod.nasa.gov/apod/image/1307/earth_cassinimessenger_1799.jpg)

More Cassini images here: [http://www.nasa.gov/mission\\_pages/cassini/main/index.html](http://www.nasa.gov/mission_pages/cassini/main/index.html)

**19. 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>