

Hi everyone! Sorry for the long delay between newsletters -- I had planned to get a couple of big things done before sending out the next one, but it turns out they're still in progress and I should post our existing updates anyway. So I still haven't gotten the resources and detailed notes from our Fall Demo Show posted online, but I hope to get that done in the future for your entertainment and edification.

Thank you, everyone who came to the Demo Show at Harriton! We had a good turnout, with about 40 attendees, including both long-time members and a bunch of new faces. There were 14 presentations, with a break in the middle for snacks. A detailed list of presenters is included below. Notes from the SEPS officers' meeting which preceded the demo show are also included below -- the big highlight is that we've lined up the two big speakers for our Spring Meeting in April. Friday night's speaker will be Sarah Demers, a professor at Yale who works on the ATLAS collaboration with CERN. Saturday night's speaker will be Ken Fink of Wondergy, a "Physics Edutainment" company that provides science education and outreach locally and around the country.

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

1. Summary of SEPS AAPT Demo Day
2. Notes from SEPS Officers' Meeting
3. Photos needed of SEPS AAPT in action
4. AAPT Physics Olympiad Registration deadline extended to 12/17
5. AP Physics B Redesign finally posted
6. Penn Monthly Outreach Lectures for Science Teachers at LRSM (12/13)
7. Sign Ups Open for AAPT PTRS Workshops (workshop 3/8)
8. Army-funded High-School and Undergraduate Apprenticeship Programs accepting applications (due 4/1/13)
9. Links: 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](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.

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1. SUMMARY OF SEPS AAPT's FALL DEMO DAY AT HARRITON HIGH SCHOOL

Here's a quick list of the presenters and their presentations at this year's Fall Demo Day on October 23rd. I'm planning to write something more detailed (with pictures) and get that out, too, but it's not done yet.

- * Bob Schwartz (Harriton) "Capacitor & Plasma Speaker"
 - Eastern Voltage Plasma Speaker Kit
 - Electronics Goldmine ultracapacitors (not always available)
- * Marc Baron (Sun Valley) "Some Cryo Stuff"
 - thermodynamics: conductor/insulator, condensing liquid oxygen, paramagnetism
- * Art Zadrozny (West Chester East) "Taking a Personal Interest in Physics"
 - "telling the story" in communicating science
 - project paper looking for physics in students' own areas of interest
- * Doug Sample (Upper Dublin HS) "Projectile Motion Challenge"
 - AP Projectile 3D challenge lab
- * Barry Feierman (Retired, Westtown School, WCU) "Efficiency of Various Light Sources"
 - light bulb comparison spreadsheet lab
- * Bill Berner (Penn) "Fnet = ma or Building Collapses: Clothespins as force limiters"
 - Clothespin-and-dowel model of Hyatt Regency walkways
 - Lab exploring force on dowel over time, with impulse and energy
- * Bill Heffner (Lehigh) "Exploring Snell's Law Using Sugar Glass"
 - Versatile, flexible, affordable way of creating (edible) custom lenses
- * Carolyn Sealton (Princeton) "Applying Physics Through Tai Chi"
 - Efficiency of motion, opening up to feel Newton's 3rd Law
- * Mike McConnell (Cinnaminson) "Spreadsheet Labs"
 - Excel vector solver
 - Excel electrostatics lab (F, E, U, V for system of charges)
 - Excel air resistance in 1D and 2D
 - www.spreadsheetlabmanual.com
- * Jeff Wetherhold (Parkland) "Steampunk(?) Online labs/worksheets (zoo)"
 - Online labs, 2001 movie analysis assignment (reference frames)
 - Steampunk hand-crank plasma ball with Magneto generator
- * Ollie Perry (retired, Cinnaminson) "A New Egg in the Bottle Trick"
- * Fran Poodry (West Chester East) "Online Graphing Calculator"
 - www.desmos.com/calculator
 - AMTA
- * Tim Vogel (Conwell-Egan) "The Magical Broken Glass Healing Liquid"
 - Wesson oil and Pyrex vs. non-Pyrex glass
- * Ken Fink (Wondergy) "Two Levitation Demos"
 - Wandaramas
 - Slow-motion freezing with Pristech reusable hot packs (active ingredient: sodium acetate)
 - \$750 center-of-mass magic trick/demo

2. NOTES FROM SEPS OFFICERS' MEETING

We had nine people present for the SEPS officers' meeting at 9:30 AM before the demo show, including our president, Carolyn Sealton, our Vice President, Paula Miller, and myself.

* We discussed the SPRING MEETING, which we will be running jointly with Drexel's Society of Physics Students this April 19th and 20th. (Save the date!) The theme will be

Communicating Physics. The student meetings draw from a wider geographical area than ours, and they usually have two evening speakers rather than one, so it should be a exciting and busy weekend. The general schedule is:

- Friday evening: Dinner and a plenary speaker (Sarah Demers of Yale University)
- Saturday morning: Plenary speaker provided by SPS, followed by at least six 30-minute mini-workshops, consisting of lecture and activities. Three workshops to be contributed by SPS, and three to be contributed by AAPT.
- Saturday afternoon: Tours of physics labs, SPS and AAPT contributed talks, possibly a Physics Jeopardy game, poster session.
- Saturday evening: Dinner and a plenary speaker (Ken Fink of Wondergy)

* We are still in the process of lining up exciting speakers for our Saturday mini-workshops, but we have some ideas. We are also aware that the Philadelphia Science Festival is the same weekend as our meeting; we are trying to coordinate some things with the Festival, but we're also aware that it will present conflicts for some of our members.

* We discussed sending out a member survey to discuss how we can serve you better -- watch your email for that, once we get it finished! We also discussed strategies for outreach, building our membership, and increasing the participation of existing members. We are concerned about trying to maintain a good balance between high school and college faculty, and provide useful outlets and resources for both groups.

3. PHOTOS NEEDED OF SEPS AAPT IN ACTION

Martha Takats, our inestimable webmaster, is trying to update the website (<http://www.physics.upenn.edu/~aapt/>) with recent AAPT exploits. If you have any pictures or comments from this summer's National Meeting, or from any other recent AAPT event, which you would like included on our website, please email them to Martha at mtakats -at- ursinus.edu.

4. AAPT PHYSICS OLYMPIAD (F=MA TEST) DEADLINE EXTENDED TO 12/17

The National AAPT runs an annual competition among high school students called the Physics Olympiad. The contest is a 75-minute multiple-choice and short-answer test that's called the "F = ma" test, and it's pretty much just on mechanics (forces, kinematics, energy, momentum, rotation, oscillations), although some of the problems, especially near the end, are somewhat difficult. It's also the first round in the competition to be on the US Physics team -- if students do really well on it, they can take two more (harder) tests, and then if they do really well on those, they can spend a week of intensive training having the US Physics coaches cram physics into them, and then go compete internationally.

If you're interested in having your students take the test, the registration deadline was originally tomorrow (12/10), but has been extended until 12/17. There is an inexpensive version of the test where students take it on WebAssign, and a slightly more expensive version involving PDFs and Scantron sheets you mail in.

More details here, past exams, and information about some WebAssign practice tests you could look at: <http://www.aapt.org/physicsteam/2012/registration.cfm>

5. AP PHYSICS (B) REDESIGN POSTED

Guided by National Research Council and National Science Foundation recommendations, the AP Program spent several years collaborating with master AP teachers and eminent

educators from universities and colleges to evaluate and revise the AP Physics B course. This collaboration led to a decision to replace AP Physics B with two new courses, AP Physics 1: Algebra-based and AP Physics 2: Algebra-based. The new courses were endorsed enthusiastically by higher education officials and will benefit all members of the AP community. AP will begin offering the eagerly awaited courses in the 2014–15 academic year, and it will discontinue the AP Physics B program following the 2013–14 academic year. Click the link for more information on the differences between Physics B and the new Physics 1 & 2 sequence.

<http://advancesinap.collegeboard.org/science/physics>

6. 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:

December 13 -- Alain Plante, Earth and Environmental Science: "The Carbon Beneath Our Feet"

January 17 -- John Crocker, Chemical and Biomolecular Engineering: "Mechano-biology: From Molecular Motors to Stem Cells"

February 7 -- Gene Mele, Physics and Astronomy: "The New Spin on Insulators"

More information is available at the link below. 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.html>

7. SIGN UPS OPEN FOR AAPT PTRS WORKSHOPS (3/8/13)

Each year the Central PA Section of AAPT offers two workshops primarily aimed at high school teachers. This year's spring workshop is scheduled for Friday, March 8 at Millersville University (near Lancaster). Copies of the announcements for the workshops are attached, with further details, registration information, and contact information for the coordinators. Please post and share the announcements, and sign up for the workshops!

8. 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/JSJS/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 ..."

9. 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>