

Hi again, and happy fall! This is the newsletter of the Southeastern Pennsylvania Section (SEPS) of the American Association of Physics Teachers (AAPT), an organization of area high-school and college physics teachers who work together to share ideas and promote excellence in physics education. We run two big annual events — our Fall Demo Day (October 18th, read on for details) and our Spring Conference (March 6th-7th, also detailed later on), as well as several smaller activities and workshops (e.g. the Force and Motion workshop at St. Joseph's University on October 18th).

This mailing list serves to distribute information to everyone in the region, which is fairly loosely defined as the greater Philadelphia area — people come to events from Delaware, New Jersey, Bucks County, and even further afield. Newsletters will come out approximately every two weeks, except when I get totally swamped with work.

I'm Jillian Waldman, the current secretary for SEPS AAPT, and you're welcome to address any questions, suggestions, pieces of information to disseminate, and subscription/unsubscription requests to me at any time. I spend most of my time teaching high school physics at Archmere Academy in Claymont, DE. The full slate of SEPS leaders is:

President: Jeremy Carlo, Villanova University
Past President: Paula Miller, Lincoln High School
Vice President: Sardari Khanna, York College of Pennsylvania
Treasurer: Art Zadrozny, West Chester East High School
Secretary: Jillian Waldman, Archmere Academy

Please read on for more information and local events!

Jillian Waldman
AP & Honors Physics Teacher
Archmere Academy
Claymont, DE

1. Register now for free Force and Motion workshop at Saint Joseph's University (workshop 10/4, register by 9/18)
2. Register now for Inaugural Mid-Atlantic APS Meeting at Penn State University (meeting 10/3-10/5, register by 9/12)
3. Register now for SEPS AAPT Fall Demo Day! (10/18 at West Chester East)
4. Penn Outreach Lectures at LRSM (next lecture 9/11)
5. Save the date for SEPS AAPT's Spring Conference at Swarthmore College (March 5th and 6th, 2015)
6. LRSM Science Cafes at Saint Declan's Well and Stoney's British Pub (next science cafes 9/8 and 10/6 in Wilmington, 10/15 and 11/5 in Philadelphia)
7. Vanderbilt University hosts new NSF-funded MOOC on Undergraduate STEM Education (free course begins 10/6)
8. Updates to AP Physics Exams and Formula Sheets (effective May 2015, affects C as well)
9. Cool physics links: The topology of pizza and potato chips, Serious scientific answers to absurd hypothetical questions, National static electricity day, If the moon were only one pixel, Epic pendulum wave demonstration
10. 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.

Feel free to email me, Paula Miller (pjmiller4-at-comcast.net) or Jeremy Carlo (jeremy.carlo-at-villanova.edu) if you have any questions about our upcoming spring meeting. I look forward to seeing many of you at Villanova next month!

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
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1. REGISTER NOW FOR FREE FORCE AND MOTION WORKSHOP AT SAINT JOSEPH'S UNIVERSITY

This hands-on workshop will address the topics of Newton's Laws of Motion, forces, friction, rotational motion, impulse and momentum conservation. Participants will also learn how data can be transferred wirelessly from a Vernier Lab Quest II to an Apple iPad.

Presenters: Barry Feierman, Kathleen McElroy, and Bob Schwartz

Sponsors: Saint Joseph's University, LaSalle University, SEPS AAPT, and the Philadelphia Regional Noyce Partnership.

Saturday, October 4, 2014

Saint Joseph's University

Science Center, Room 317

10:00 am – 1:00 pm

Light breakfast served at 9:00 am

Free parking provided

Registration is free, but limited to 24 people. Register here by September 18th: <https://www.eventbrite.com/e/physics-workshop-series-for-science-teachers-force-and-motion-tickets-12877909173>

This is the first in a series of workshops, including a February 2015 workshop on the theme of Energy and Thermodynamics, and an April 2015 workshop on Waves, Light, and Sound.

If you have further questions about this workshop or the workshop series, please read the attached flyer, or contact Barry Feierman (bhfeier-at-aol.com) or Greer Richardson (richards-at-lasalle.edu).

2. REGISTER NOW FOR INAUGURAL MID-ATLANTIC APS MEETING AT PENN STATE

<http://sites.psu.edu/midatlanticaps>

The inaugural meeting of the Mid-Atlantic section of the APS will be held at Penn State University, October 3-5, 2014. The [Mid-Atlantic Section \(MAS\)](#) is a new APS unit that serves District of Columbia, Delaware, Maryland, New Jersey, Pennsylvania and West Virginia. Its goal is to

strengthen the physics community in the region and to aid APS in its mission to advance and diffuse the knowledge of physics at the regional level. Flyer here: <http://sites.psu.edu/midatlanticaps/wp-content/uploads/sites/7744/2014/07/poster.pdf>

The deadline for early registration and late abstract submission is September 12th.

A workshop/discussion about teaching undergraduate physics will precede the meeting; there is a \$20 additional registration fee for the workshop:

<http://sites.psu.edu/midatlanticaps/workshops/>

3. REGISTER NOW FOR SEPS AAPT FALL DEMO DAY!

Demo Days are a fun opportunity for physics teachers to gather and share their favorite class-

room demonstrations. Past Demo Days have presented a range of demonstrations, from those using everyday items, like popcorn and broken glass, to technology that can show students how to measure the speed of light. Attendees need bring nothing more than a love for Physics, but all are welcome to bring and share their unique ways of demonstrating physics concepts.

This year's Fall Demo Day will be held at East High School in West Chester, PA, starting at 9:00 with a light breakfast and conversation with area Physics teachers, followed by presentations of 5- to 10-minute demonstrations that can liven up your classes.

You are asked to register for this event by emailing our host, Art Zadrozny: ArtZadrozny -at- gmail.com. If you have a demo you'd like to present, please let him know, and include any specific technical needs.

There is no cost to attend, although we strongly encourage you to pay the nominal (\$10) annual dues to support our work and officially join SEPS AAPT.

East High School is located at: 450 Ellis Lane, West Chester, PA 19380

Use the Gym entrance, from 9:00—11:30am

4. SAVE THE DATE FOR SEPS AAPT SPRING MEETING AT SWARTHMORE COLLEGE

Our Spring conference will be held March 6-7, 2015, at Swarthmore College. This conference gives high school and college faculty the chance to hear from noted speakers on some of the most current topics in both Physics research and Physics education strategies.

Unlike the others, this will have an associated registration fee — details will follow later in the year as they are hammered out. If you have any questions or suggestions, our SEPS AAPT President, Jeremy Carlo, jeremy.carlo -at- villanova.edu, is probably the best person to ask.

5. 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, generally 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. All talks take place at:

LRSM, 3231 Walnut Street, Philadelphia

The first teachers lecture of the year will be held on Thursday, Sept. 11 at 5:30 pm in the LRSM Reading Room, 3231 Walnut St. The speaker will be Prof Shu Yang, Materials Science and Engineering and the topic:

'From Adaptive Building Skins to Shape Changing, Foldable Devices via Kirigami.' This will be a

fascinating talk!!

It will, as usual be followed by pizza and refreshments. Parking is on-street via Pay and Display machines. Come and bring a colleague or good student. They look forward to seeing many of you there.

Remember that pizza and refreshment will follow and that parking is available on-street via Pay and Display kiosks. More information about the LRSM's outreach lectures 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>

6. LRSM SCIENCE CAFES AT ST DECLAN'S WELL AND STONEY'S BRITISH PUB

LRSM also offers a series of science cafes, open to the public. The Science Cafés, which are science talks for laymen about materials-related topic of current interest, will take place at 7:30 pm at Stoney's British Pub, 3007 Concord Pike, Wilmington DE and Saint Declan's Well, 3131 Walnut St. Philadelphia, PA, at 6:00 pm.

Upcoming Science Cafes include:

September 8, 2014 at Stoney's British Pub in Wilmington: Eric L. Hume, MD, Penn Orthopaedics, Perelman SOM, University of Pennsylvania, "Adventures and Misadventures in Materials and Biology: 50 Years of Hip Replacement Progress"

October 6, 2014 at Stoney's British Pub in Wilmington: Dillon Brout, Physics & Astronomy, University of Pennsylvania, "Advances in Race Car Vehicle Dynamics and Race Strategy"

October 15, 2014 at St Declan's Well in Philadelphia: Igor Bargatin, Mechanical Engineering and Applied Mechanics, University of Pennsylvania, "Advances in Race Car Vehicle Dynamics and Race Strategy"

November 5, 2014 at St Declan's Well in Philadelphia: David Salas-de la Cruz, Ph.D., EIT, Rutgers University, Camden, "3D Printer: Materials and Custom-made Manufacturing Revolution"

November 10, 2014 at Stoney's British Pub in Wilmington: Karl Adamsons, Axalta, "Art Preservation Over the Last ~5000 Years"

Full schedule here: <http://www.lrsm.upenn.edu/events/sciencecafes/>

7. NEW MASSIVELY OPEN ONLINE COURSE ABOUT UNDERGRADUATE STEM TEACHING

"An Introduction to Evidence-Based Undergraduate STEM Teaching" is a MOOC on undergraduate STEM teaching that starts in early October, aimed at new faculty, grad students, and post-docs. This seven-week course explores effective teaching strategies for college or university STEM (science, technology, engineering, mathematics) classrooms.

The course will draw on the expertise of experienced STEM faculty, educational researchers, and staff from university teaching centers, many of them affiliated with the [Center for the Integration of Research, Teaching, and Learning \(CIRTL\)](#), a network of 22 research universities collaborating in the preparation of STEM graduate students and post-docs as future faculty members. The seven-week course will be highly interactive, with many opportunities for peer-to-peer learning. Learning communities are at the heart of CIRTL's activities, and this open, online course is intended to foster a large, healthy learning community of those interested in undergraduate STEM teaching--including current STEM faculty.

"An Introduction to Evidence-Based Undergraduate STEM Teaching" has been developed by faculty, staff, and students at [Vanderbilt University](#), [Michigan State University](#), [Boston University](#), the [University of Wisconsin-Madison](#), and the [University of Colorado-Boulder](#).

For more information or to enroll (for free): <https://www.coursera.org/course/stemteaching>

8. UPDATES TO AP PHYSICS EXAMS AND FORMULA SHEETS

As you may have heard, the College Board has been talking about revamping the AP Physics B exam for several years now. This spring will be the first time that the new exams — AP Physics 1 and AP Physics 2, both three-hour exams, but each on approximately half of the previous AP Physics B material — will be offered. Note that the exam will be offered on May 6 — the Wednesday of the first week of AP Exams, the week before the Physics C exam.

More information here: <http://advancesinap.collegeboard.org/math-and-science/physics>

If you are a Physics C teacher, does this affect you? Maybe, maybe not. The College Board thought the Physics C exam worked quite well and did not need to be revised. The only change that definitely affects all AP teachers is that the equations sheets have been revised to bring them in alignment with each other and best practices. Here's the new Physics C sheet, with some small but crucial revisions — <https://prettygoodphysics.wikispaces.com/file/view/APC%20Equation%20sheet%202015.pdf/520996784/APC%20Equation%20sheet%202015.pdf>

And here are the new algebra-based equation sheets:

Physics 1: <https://prettygoodphysics.wikispaces.com/file/view/APC%20Equation%20sheet%202015.pdf/520996784/APC%20Equation%20sheet%202015.pdf>

Physics 2: <https://prettygoodphysics.wikispaces.com/file/view/P2%20Equation%20sheets%202015.pdf/519722914/P2%20Equation%20sheets%202015.pdf>

Both combined: <https://prettygoodphysics.wikispaces.com/file/view/P1%262%20Equation%20sheets%202015.pdf/519722990/P1%262%20Equation%20sheets%202015.pdf>

Also, if you're an AP Physics teacher who's been teaching the course for 3 years or more, OR if you're a college professor with the patience and interest, the College Board is looking to hire "AP Exam Raters" to spend a week grading exams in early summer 2015. Now is the right time to apply if you're interested — later in the year, everything will be full already! Getting into the rater pool is not a guarantee that you will be called to grade exam (e.g. they haven't actually called me yet) but you do stay in the pool for 5 years once you're in.

<http://apcentral.collegeboard.com/apc/public/homepage/4137.html?excmpid=MTG2-ED-10-hnet>

9. COOL LINKS:

Here's a neat article in Wired about the topology of pizza and potato chips (and Gaussian curvature): <http://www.wired.com/2014/09/curvature-and-strength-empzeal/>

Randall Munroe's fantastic "What if?" column (tagline: Serious Scientific Answers to Absurd Hypothetical Questions) remains fantastic — his most recent column was on what would happen if you had all the money in the world, and what would the physical behavior of such a giant pile of cash be like — and he's just put out a new book: <https://what-if.xkcd.com/>

According to Peeps (the marshmallow candy) January 9th is National Static Electricity Day. <http://www.ispot.tv/ad/7Rjb/peeps-minis-national-static-electricity-day>

If the Moon were Only One Pixel, a "tediously accurate" map of the solar system: http://joshworth.com/dev/pixelspace/pixelspace_solarsystem.html

Pendulum motion with sound: an epic demonstration of the effect of pendulum length on period, with sound. <https://www.youtube.com/watch?v=YhMiuzyU1ag>

10. 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>