



Southeastern Pennsylvania Section of the American Association of Physics Teachers

An organization to bring together high school and college physics teachers and other professionals working in science education <http://www.physics.upenn.edu/aapt/>

Spring Meeting – April 26-27, 2013

Joint Meeting with SPS Zone 3: <http://www.drexel.edu/physics/news/calendar/SPS%20Meeting/>

Title: Communicating Physics

Location: Drexel University, 33rd St. & Chestnut St., Philadelphia, PA 19104

<http://www.drexel.edu/>

Contact: duzone3@physics.drexel.edu

Friday, April 26, 2013

4 PM – 7 PM Registration and Lab Tours, Papadakis Integrated Sciences Building (PISB) Atrium, 3250 Chestnut St (at 33rd St.)

7 PM – 8 PM Dinner (included in registration), Behrakis Grand Hall, Creese Student Center, 3210 Chestnut St.

8 PM – 9 PM Invited plenary talk, Behrakis Grand Hall
“Hunting for the Higgs at CERN”

[Dr. Sarah Demers](#), Assistant Professor of Physics, Yale University

Saturday, April 27, 2013

7:30 AM – 8:45 AM Registration, Breakfast (included in registration fee), PISB Atrium

8:45 AM – 9:00 AM Welcome, PISB 106

9:00 AM – 10:30 AM Workshops, PISB Rooms (concurrent sessions)

9:00 AM – 10:30 AM “Modeling Instruction in Physics”, PISB 104

Dr. Doug Valette, Science Department Chair, Unionville High School

9:00 AM – 9:45 AM “Communicating Physics to Policymakers,” PISB 108

Aline McNaull, Policy Associate, American Institute of Physics

9:45 AM – 10:30 AM “Diversity in Physics,” PISB 108

Dr. Michelle Dolinski, Assistant Professor of Physics, Drexel University

10:30 AM – 11:00 AM Coffee Break, PISB Atrium

11:00 AM – 11:45 AM “How to Make Yourself a Science Pundit”, PISB 106

Dr. Dave Goldberg, Professor of Physics, Drexel University

11:45 AM – 12:30 PM SEPS and SPS meetings, PISB Rooms (concurrent sessions)

SEPS Business meeting, PISB 108

“Good Advice for Having an Awesome SPS Chapter”, PISB 104

12:30 PM – 1:30 PM Lunch (included in registration fee), Behrakis Grand Hall

1:30 PM – 3 PM Contributed Talks and Demonstrations, PISB Rooms

SPS talks, PISB 104

AAPT papers and demos, PISB 108

3 PM – 3:30 PM Snack Break, Behrakis Grand Hall

3:30 PM – 5 PM Physics Jeopardy, AAPT vs. SPS, Behrakis Grand Hall

5 PM – 6 PM SPS & AAPT Poster Session, Behrakis Grand Hall

6 PM – 7 PM Dinner (included in registration fee), Behrakis Grand Hall

7 PM – 8:30 PM [Iron Physicist Competition](#), open to the public, no cost; PISB Room 120
in collaboration with the Philadelphia Science Festival

Host: [Ken Fink](#), President and Founder, Wondergy Science Edutainment
Drexel Observatory Open House (weather permitting, meet at Behrakis)

Abstracts for AAPT Invited Workshops

Modeling Instruction in Physics

9:00am-10:30am in PISB 104

limited space available; pre-registration recommended

Douglas P. Vallette, Ph.D.

Science Department Chair

Unionville High School

The Modeling Method is an NSF-funded and research-based method of science instruction that has been developed to provide a coherent model-based curriculum. This method encourages students to learn through the construction and application of a small set of scientific models. These basic models form the core for understanding physics. In the process, students learn basic conceptual tools that are scaleable for a variety of learning abilities, and that encourage students to think about physics from multiple viewpoints. We will present an overview of the modeling method and the models that have been developed and then go through one modeling cycle to give participants an understanding of a modeling classroom. In the first session, we will go through the beginning of the cycle, including a paradigm lab, and in the second session we will break out into lab extensions and activities. More information about modeling instruction is also available at the American Modeling Teachers' Association website, modelinginstruction.org.

Communicating Physics to Policymakers

9:00am-9:45am in PISB 108

Aline McNaull

Policy Associate

American Institute of Physics

Politicians are tasked with making decisions on a wide variety of scientific issues. Whether they are focused on promoting innovation within a particular industry or whether they are concerned about environmental effects on agriculture, the policies developed by Members of Congress regularly have an impact on the physics community. In this session, I will provide an update on current science topics being discussed in Congress and the Executive Branch and will provide examples of positive outcomes from meetings between the physics community and policy makers. I will offer information about the process that politicians on both sides of the aisle go through in order to make policy decisions and will show how physicists have successfully provided input on legislation that affects research and development. Participants will be able to examine discussions on Capitol Hill that are relevant to their research. I will discuss how decisions made by politicians are sometimes based on misperceptions of the scientific community and confusion about the scientific process. Participants will have the opportunity to work in groups to discuss how the physics community can play a role addressing misconceptions and educating Members of Congress. Lastly, I will also provide information on how to meet with Members in Congress and participants will have the opportunity to devise strategies for having effective and successful meetings.

AAPT Contributed Talks and Demonstrations

Location: PISB 108

- 1:30 - 1:40 pm: A Sensory Illusion: Common Mistake in Physics Regarding Radio Waves
Anne Tabor-Morris, Georgian Court University
Discussed here is the long known fact that many students appear to conclude that, since they experience radio broadcasts as sound, sound waves are the actual transmission of radio signals, not a representation of those waves as produced by the translator box, the radio. A survey of students from multiple high schools, taken right after students have covered electromagnetic radiation, highlights the frequency of this common misconception and its impact on student learning. Results of this survey are shared and discussed, and possible remediations are put forward here.
- 1:45 - 1:50 pm: Making Sense of Work and Impulse with a Clothes Pin and a Dowel
Bill Berner, University of Pennsylvania
This presentation will use a clothes pin and dowel braking system on a standard dynamics track to make the stopping distance and time of a dynamics cart big enough to observe. Force and motion detectors are used to quantify the behavior and plot force vs. time and force vs. distance. Integration of the graphs shows that momentum change equals impulse and energy change equals work.
- 2:00 - 2:10 pm: My Physics Website
Jeffrey Wetherhold, Parkland High School
I developed a physics website that includes daily student notes, on-line text, videos of my lectures, and make-up labs; and it has proved to be not only a valuable resource, but a time saver as well.
- 2:15 - 2:25 pm: Using Personal Response Systems in the Classroom
Carolyn Sealfon, Princeton University
The audience will participate in one or two examples of how one might use personal response systems (e.g. clickers) to increase student engagement, communication, and learning. Please have your cellphone, tablet, or laptop handy.
- 2:30 - 2:40 pm: Buoyancy and Newton's 3rd Law with a Vernier Force Plate Meter
Barry Feierman
I will use a Vernier force plate meter to demonstrate some aspects of Newton's Laws and buoyancy forces.
- 2:45 - 3:55 pm: Using Social Media to Communicate with Students
Fran Poodry, West Chester East High School
Issues abound when high school teachers communicate with high school students over social media. How can social media be used effectively at the high school level without violating school/district policies? What can be accomplished through social media that would not happen within the classroom? Why should a teacher use social media at all with one's students, given the issues involved? I use Facebook and Twitter with high school students in a public school setting and will share guidelines and tips. You can follow me on Twitter by searching for the username MsPoodry.

AAPT Contributed Poster

Low-cost Experiments in Glass Science Using Candy Glass

Bill Heffner, Lehigh University

We present a collection hands-on experiment and home-built apparatus designed to explore physics and “real” glass science through a common and accessible sugar glass also known as hard candy. Experiments are all low-cost and inter-related and include: synthesis, phase diagram, refractive index measurement, crystallization phenomena, and a fiber drawing tower, as well as differential thermal analysis and electrical conductivity apparatus.

Registration Rates

The following prices are for members of SEPS AAPT. If you are not yet a member, you can become a member for just \$10 (added to your registration fee).

Full Meeting Registration (Friday evening and all day Saturday, including meals):

\$85 in advance (before April 15)

\$100 on site

\$50 graduate student

(Undergraduate students should register through [SPS Zone 3](#).)

Prices for only attending part(s) of the meeting:

Friday evening (includes dinner)

\$25 in advance

\$35 on site

\$15 graduate student

Saturday morning through 1:30pm (includes breakfast, coffee, lunch)

\$35 in advance

\$45 on site

\$20 graduate student

Saturday afternoon through evening (includes snack and dinner)

\$40 in advance

\$50 on site

\$25 graduate student

Please fill out the [online registration form](#), then mail your registration payment (including membership fee, if applicable) to:

Art Zadrozny

1229 Gail Road

West Chester, PA 19380

(or bring your check in person to register on-site.)

Please make checks payable to SEPS AAPT, and include your email address or phone number in the "comments" section of the check.

Payment for advanced registration must be received no later than April 15.