The American Association of Physics Teachers
Southeastern Pennsylvania Section
Spring 2016 Meeting
April 1-2, 2016
Saint Joseph's University
Philadelphia, PA

Friday Night, April 1st

5:15 – 6:00 PM Registration & Chat, **2nd Floor Campion Student Center**

6:00 – 7:00 PM Dinner, **President's Lounge, Campion Student Center**

7:30 – 8:30 PM Introductions & featured guest speaker **Paul Hewitt** "Equations as Guides to Thinking" – FREE and open to the public, **Room 300 Science Center**

Saturday Morning & Afternoon, April 2nd

8:00 – 9:00 AM Registration, Breakfast & Chat, **5th Floor McShain Hall**

9:00 – 9:15 AM Introductions & Announcements, **5th Floor McShain Hall**

9:15 – 10:15 AM Featured guest speaker **Paul Steinhardt** (Princeton University) "Once Upon a Time in Kamchatka", **5th Floor McShain Hall**

10:30 – 11:30 AM Featured guest speaker **Rick VanBerg** (University of Pennsylvania) "Sixty Years of Experimental Neutrino Physics – A Somewhat Personal Perspective", **5th Floor McShain**

11:45 AM – 1:00 PM SEPS Business Meeting & Lunch, **5th Floor McShain Hall**

1:15 – 2:05 PM Simultaneous workshops: "Guide to Teaching the New AP Physics 1 & 2 courses" (presented by Jim Ferrerra) ; "Using PASCO Capstone Software & Accompanying Hardware" (Chong Yang from PASCO), **3rd Floor of Science Center**

2:15 – 3:15 PM Simultaneous workshops; same as previous hour

Abstract for Paul Hewitt's talk, *Teaching the Equations of Physics*
The dependence on excessive problem solving as a measure of comprehension of physics is too highly valued for the introductory student, especially for those students you are referring to, and even for the introductory course for students interested in the sciences.

Abstract for Paul Steinhardt's talk, *Once Upon a Time in Kamchatka: The Extraordinary Search for Natural Quasicrystals*
Quasicrystals are exotic materials that have symmetries that were once thought to be impossible for matter. The first known examples were synthesized in the laboratory 30 years ago, but could Nature have beaten us to the punch? This talk will describe the search that took over a dozen years to answer this question, resulting in one of the strangest scientific stories you are ever likely to hear.

Abstract for Rick VanBerg's talk, *Sixty Years of Experimental Neutrino Physics – A Somewhat Personal Perspective*
The neutrino was postulated in 1930 as a theoretical answer to an experimental puzzle in beta decay. Neutrinos were first observed experimentally sixty years ago by Reines and Cowan. Since that first discovery, the neutrino has become firmly fixed into the "Standard Model" of particle physics - three flavors of neutrinos to echo the three charged leptons - electrons, muons and taus. Nevertheless, neutrinos remain, in many ways, the least well understood constituents of the Standard Model. Until this century neutrinos were expected to have zero mass but we now know from a number of challenging experiments that neutrinos have tiny but unknown masses and even imagine that neutrino properties may underlie why we live in a matter dominated universe and not an anti-matter universe. I will try to cover a few of the experiments that have brought us to this interesting point - many of which I was lucky enough to be able to work on.

Abstract for Jim Ferrara's workshop, *Guide to Teaching the New AP Physics 1 & 2 courses*
The transition from AP Physics-B to AP Physics 1 & 2 has been a bumpy road. In particular, the assessment has significantly changed in both its structure and grading. This workshop will discuss changes in the teaching approach to and the curriculum of the new AP Physics courses. Time will be dedicated to discussing experiences from the first year with the course and with live exams. Results will be presented in context with insight from the grading. There will also be ample opportunity for open dialogue and Q&A.
Dr. Ferrara has been teaching AP Physics-C, AP Physics-B and now AP Physics-1 for 14 years. He has been grading ("reading") AP Physics exams for several years with experience in reading the Physics-C, B, & 1 exams.

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All attendees must park in the Hawk's Landing Parking Garage. You will be prompted to take a ticket upon entering and the SJU Physics Department will cover the cost of your parking for both days. The parking garage is located on 54th Street and will be on your left after your turn off City Avenue.

Act 48 credits will be available and offered through our co-sponsor, the Philadelphia Regional Noyce Partnership (Bryn Mawr, Haverford, Drexel, LaSalle, Saint Joseph's University, Temple, University of Pennsylvania, in addition to the Philadelphia Education Fund.
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