

AAPT1 Room 170F

moderator: Martina Arndt

8:00-8:25

In the Footsteps of the Master...Life and Accomplishments of Galileo

John S. Gianforte; Granite State College

This will be a voyage back through time to the days of Galileo as he made the first recorded and publicized telescopic observations in 1609, 400 years ago this year. By virtue of these critical, initial observations and his discoveries that soon followed, Galileo changed the course of scientific thought. The International Year of Astronomy will highlight and celebrate the historic accomplishments of Galileo and of other astronomers all through 2009. You will learn about the discoveries and accomplishments of Galileo as well as how you can take part in the IYA celebration activities.

8:30-8:55

Optical Integrating Sphere and Measuring the Intensity of Light

Bulbs

Gary Garber; BU Academy, co-presenting with two of my students, Mathew Rajcok and Patrick Straight.

Using the PHOTON PBL (Problem Based Learning) curriculum developed by the New England Board of Higher Education, we tested a module which challenged students to design a method to prove the claims that Compact Fluorescent Light Bulbs are four times as efficient as Incandescent Bulbs. The students used multi-meters, an Integrating Sphere and a Vernier Light Sensor to compare the intensity of the bulbs. The integrating sphere consisted of an inexpensive (less than \$100) 30? diameter Styrofoam sphere with baffles. The experiment had unexpected results!

9:00-9:25

Problem-Based Learning Challenges for the High School and College

Classroom

Fenna Hanes, Senior Director of Professional & Resource Development for the New England Board of Higher Education

Problem Based Learning (PBL) is an instructional method that challenges students to “learn how to learn” by collaboratively solving genuine real-world problems. Research shows that compared to traditional lecture-based instruction, PBL improves student understanding and retention of ideas, critical thinking, communication and problem-solving skills, as well as students’ abilities to adapt their learning to new situations.

Project PHOTON Problem Based Learning, a project of the New England Board of Higher Education, funded by the Advanced Technological Education program of the National Science Foundation has developed a series of eight multi-media Challenges focused in the field of optics and photonics and developed in collaboration with industry and research universities. The Challenges are based on “real-world” problems and are designed for use in high school and college science and technology courses.

The Challenges can be taught in a structured, guided and open-ended manner to accommodate students with different levels of content knowledge and experience with problem based learning. This presentation will describe how the Challenges were developed and how they are being used in classrooms across the country.