

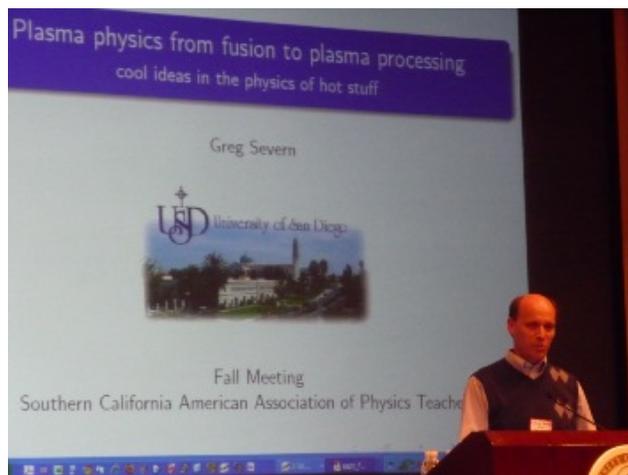
Southern California Section Fall Section Meeting – November 14th

The Fall Meeting of the Southern California Section was held Saturday, November 14th at University of San Diego, San Diego, California. Attendees were welcomed to the meeting by the local host, Greg Severn, San Diego University Physics Department. Special thanks are due to Greg for arranging the meeting site. Approximately 50 people attended.

The meeting began with a choice of two activities. Some participants attended a workshop entitled "**Construction of Inexpensive Momentum and Energy Collision Carts and Track**" led by Bill Layton (UCLA) and Bob Baker (University Senior High School). Workshop participants built a low cost track and carts (\$20 materials) and learned how to use them. Other attendees chose a tour of the new University of San Diego science facilities. The tours were guided by student members of the campus Society of Physics Students and Chemistry Club.

Dr. Alexander Rudolph <alrudolph@csupomona.edu> from California State Polytechnic University Pomona gave the morning invited talk "**The Effect of Interactive Instruction in the Astro 101 Classroom: Report on a National Study.**" Dr. Rudolph described a national research study designed to determine the effect of interactive learning strategies on students' conceptual learning in general education astronomy courses. Nearly 4000 students at 31 institutions (4-year and 2-year) around the country participated in the study. There were dramatic improvement in student learning with increased use of interactive learning strategies. These gains applied equally to men and women, across ethnicities, for all levels of prior mathematical preparation and physical science course experience, independent of GPA, and regardless of primary language. The presentation made use of Classroom Response Systems (aka "clickers") allowing participants to experience interactive learning firsthand.

Dr. Greg Severn <severn@sandiego.edu> from the University of San Diego presented the afternoon invited talk "**Plasma Physics from Fusion to Plasma Processing: Cool Ideas in the Physics of Hot Stuff.**" Dr. Severn contrasted the two extremes of the plasma state, thermonuclear fusion in stars and compact fluorescent light bulbs. He then discussed how a wide variety of technologies, from fusion reactors to micro-chip etchers, exist in between these high temperature and low temperature plasmas. The technologies are based on plasma science and have profoundly affected modern society. Dr. Severn stated that fusion is the energy of the future and that that future is becoming closer as Q values (energy created over energy added) continue to increase. He described recent experimental research of plasma boundary physics conducted by a University of Wisconsin-Madison and USD research collaboration.



The meeting also featured a panel discussion entitled "**What can we learn from initial experiences with Physics First?**" The panelists were Dan Lavine (San Diego Unified School District) and Dominic Dirksen (Steele Canyon High School, Spring Valley, California) and Bill Layton moderated. They discussed the history of Physics First in the San Diego Unified School District. It is currently a site by site decision and works best if the school can take "ownership" of the program. Students who succeeded in 8th grade algebra were successful in physics. On the other hand, some schools had many students who struggled with math. Three fourths of the students who didn't pass physics in the 9th grade did not graduate from high school. The panelists also discussed problems of testing to state standards that are not based on physics first. Several teachers from the San Diego area who have had direct experience with the program discussed its effectiveness and possible extension. We were reminded that the 8th grade California Physical Science Standards contain a great deal of physics (already a kind of physics first) and perhaps we should build more upon this experience in high school.



The ever-popular Show 'n' Tell featured demonstrations by James Lincoln "Toy Box Physics", Bill Layton "Quick and Simple Energy and Momentum Collision Demonstrations", Fred Carrington "Build and Use a Simple Electrophorus", and Myron Mann "Resolution of the Human Eye and the Rayleigh Criterion."

The following contributed talks were presented:

"Clicker use in Large Introductory Physics Lecture Classes"

George A. Kuck (galbertk@aol.com), California State University, Long Beach

"Journal-style Lab Reports in the Advanced Physics Lab Courses"

Ertan Salilk (esalik@csupomona.edu), California State Polytechnic University, Pomona

"Fighting the Bean Counters. Laboratory Science Classes at Dangerous Numbers."

Gary Reynolds (drgreynolds@sbcglobal.net), Santa Ana High School

The meeting ended with our World Famous "Order of Magnitude Contest." This meeting's question was: "At what temperature does a body's radiance peak in the AM band?" Al Siger submitted the median answer of 10 μ K and selected a Plasma 360 Ball from the APS Division of Plasma Physics Research. Door prizes were won by Jimmy Liao (\$50 Vernier Gift Certificate), Joe Rauch (*Physics with Vernier*), Lee Leveridge (*Physics with Video Analysis* from Vernier), Deborah Lilly (*Physics* Schaum's Outline from McGraw Hill), Beth Stoeckly and Ertan Salik (each *Physics* by Giambattista, Richardson, and Richardson from McGraw Hill). Ten high school teachers received copies of *The Plasma Universe* (Cambridge University Press). Many attendees received AAPT pens, note cards, posters, and trading cards.

We thank our corporate sponsors – Vernier Software & Technology, McGraw-Hill Science,

Cambridge University Press, the APS Division of Plasma Physics Research, and Cenco-Sargent/Welch – for their support and donation of door prizes.

The Southern California Section will hold its Spring Meeting in late April or early May. Please bookmark the SCAAPT URL <http://www.scaapt.org/> and check for the date in early Spring.

Mary Mogge, Section Representative
Southern California Section