

## **Southern California Section Spring Section Meeting – April 21<sup>st</sup>**

The Spring Meeting of the Southern California Section was held Saturday, April 21<sup>st</sup> at California State University San Marcos. Attendees were welcomed to the meeting by SCAAPT president Jeff Phillips. Special thanks are due to local host Charles De Leone for arranging the meeting site and to the physics department's PhysTEC grant for providing morning refreshments. About 45 people attended.

The meeting began with a morning workshop "ClassAction: A Powerful Tool for Active-Learning Sequences" <http://astro.unl.edu/classaction> led by Rica Sirbaugh French <rfrench@miracosta.edu> from MiraCosta College. After an introduction to the ClassAction suite, participants were given the opportunity to design and implement interactively engaging learning sequences tailored to their own classroom needs.

Drs. Charles De Leone <cdeleone@csusm.edu> and Edward Price <eprice@csusm.edu> from CSU San Marcos gave the morning invited talk "The Happy Marriage of Pedagogy and Technology in the Physics Classroom." Drs. De Leone and Price described how the CSUSM Physics Department has utilized the extensive innovation in physics pedagogy and classroom technology that has occurred in the last 20 years. They described how the department's introductory physics course for life science majors features non-traditional content sequences and pedagogy; a model-based approach introduces energy before force, and most class time is spent on small group work and whole class discussions. The Department has also employed innovative classroom technology such as clickers, tablet PCs, screencasts, and photo-sharing websites. These two efforts have informed each other leading to results that would not have been possible with either alone. The talk described both strands of their work and highlighted interesting and unexpected interactions arising from using classroom technology to facilitate innovative pedagogy. Drs. De Leone and Price discussed what worked well and what needed to be modified or abandoned.

Dr. Vivek Sharma <<http://hepweb.ucsd.edu/~vsharma/aboutme.php>> from UC San Diego gave the afternoon invited talk: "The Hunt for the Higgs Boson." Dr. Sharma began his talk with a brief description of the Standard Model and need for the elusive Higgs Boson, the quantum particle associated with an all-pervading Higgs field hypothesized to explain the origin of mass in our universe. He then described the LHC collider and the CMS detector at CERN. Dr. Sharma was part of the team that built the CMS and he showed photos of its construction, assembly, and insertion. During 2011, the LHC provided more than 400 trillion proton-on-proton collisions at a center-of-mass energy of seven trillion electron volts. Dr. Sharma showed a simulation of the collisions. He then focused on the hunt for the Higgs and the signature of possible events. He predicted that 2012 should be an important year for the Higgs: either it will be found with  $\sim 5$ -sigma significance or its existence will be ruled out.

Results of the section video contest were announced at the business meeting. There were 33 entries, all from high school students. Links to the high achieving entries will be posted on the section website <http://www.scaapt.org/>. The winner of the \$500 prize was Dennis Barahona from Rancho Cucamonga High School. His teacher, Karen Gerdes, will receive a \$50 gift certificate.

Attendees were reminded that the section is running three new teacher workshops a year and were encouraged to invite colleagues who might benefit. They were also encouraged to form a local area network (LAN) or learning community and apply for one of the \$100 section grants. San Marcos

faculty announced that are organizing a LAN to be called North County Physics Educators (NorCoPE) and encouraged local teachers to join. Changes to the new bylaws, which better defined members, were discussed and approved. Elections were held and the following officers were elected:

President:	James Lincoln
Vice President for High Schools:	Chija Bauer
Vice President for 2-year Colleges:	Lee Loveridge
Vice President for Universities:	Bradley "Peanut" McCoy
Past President:	Jeff Phillips
Treasurer/Secretary	Nuria Rodriguez
Web Manager	Ed Price
Section Representative:	Mary Mogge

There was a poster session during the lunch break. The following posters were presented:

**The Center for Astronomy Education (CAE) Teaching Excellence Workshops and Regional Teaching Exchanges**, Rica French <rfrench@miracosta.edu>, MiraCosta College

**The Longest Day: A Geometry-based Astronomy Exercise**, Tim Heumier <theumier@apu.edu>, Azusa Pacific University

**Optical Phase Measurement**, Ertan Salik <esalik@csupomona.edu>, Cal Poly Pomona

**Thinking in Physics and Gender Effects**, Vincent P. Coletta, Jeffrey A. Phillips <jphillips@lmu.edu>, and Raquel Sena, Loyola Marymount University

The ever-popular Show 'n' Tell featured demonstrations by:

Rica French <rfrench@miracosta.edu>, MiraCosta College, "FREE High-Quality Interactive Resources for Teaching Astronomy"

Tim Heumier <theumier@apu.edu>, Azusa Pacific University, "Determining the Age of a Sample of Radioactive Dice"

Stephen Tsui <stsui@csusm.edu>, CSU San Marcos, "Evil Simplicity: University of Maryland's Question of the Week Physics Demo Site"

The following contributed talks were presented:

**"How Experiments Work"** Greg Severn <severn@sandiego.edu>, University of San Diego

**"How to Build Your Own Computer Cluster (and why you would want to)"** John Price <jprice@csudh.edu>, CSU Dominguez Hills

**"Introducing San Onofre Nuclear Power Plant"** Chris Abel <Christopher.Abel@sce.com>, Southern California Edison

**"Enhancing the Educational Astronomical Experience of Non-Science Majors with the use of an iPad and Telescope"** Robert Gill <rgill@csusm.edurgill@csusm.edu>, CSU San Marcos

**"Bogus Astronomy - Examples for Teaching Scientific Reasoning"** Tim Heumier <theumier@apu.edu>, Azusa Pacific University

**"UCSD Video Project for Conceptual Physics Courses"** Michael G. Anderson <mganderson@physics.ucsd.edu>, UCSD

**"District-wide Physics Teacher Coordination"** Bob Rumer <rrumer@callutheran.edu>, California Lutheran University

**"Optical Phase Shifts and the Nightmare of Conventions"** Ertan Salik <esalik@csupomona.edu>, Cal Poly Pomona

**"Using 'Wordles' to Stimulate Student-Teacher Interactions"** Patrick M. Len <pmL@waiferx.com>, Cuesta College

**"Introductory Gen Ed Science Courses, CATS, and the Center for Astronomy Education (CAE)"** Rica Sirbaugh French <rfrench@miracosta.edu>, MiraCosta College

The meeting ended with our World Famous "Order of Magnitude Contest." This meeting's question was: "*For how long could human population grow at its current rate before it would be standing room only?*" Al Siger won with the median answer of 650 years. Michael Anderson, Bill Doerge, and Ertan Salik won water bottles and books donated by AAPT.

We thank our corporate sponsors – WH Freeman <http://www.whfreeman.com>, Perfection Learning <http://www.perfectionlearning.com>, and the American Association of Physics Teachers <http://www.aapt.org/> – for their support and donation of door prizes.

The Southern California Section will hold its Fall Meeting late October or early November. Please bookmark the SCAAPT URL <http://www.scaapt.org/> and check for more information in early fall.

Mary Mogge, Section Representative  
Southern California Section