

FALL 2012 NEWSLETTER

California Section of the American Physical Society

The Department of Physics at Cal Poly San Luis Obispo is pleased to host the 2012 annual meeting of the California-Nevada-Hawaii Section

Cal Poly San Luis Obispo
November 2-3, 2012

Information can be found on the website of the conference
www.physics.calpoly.edu/aps-ca

We invite you and your students to attend this stimulating meeting and submit an abstract for the parallel oral sessions. Registration is now open - abstract submission deadline is Friday, September 28, 2012.

2012 Annual Meeting
of the California Section of the American Physical Society

November 2-3, 2012
California Polytechnic
San Luis Obispo, CA

Plenary Talks:

- Barbara Jones - IBM Almaden**
"Surprising Behavior of Magnetic Spins"
- Chetan Nayak - UC Santa Barbara**
"Quantum Matters"
- Pete Schwartz - Cal Poly SLO**
"Technology Summer School in Guatemala"
- Steven Barwick - UC Irvine**
"Search for Extremely High Energy Neutrinos"

Prizes for the best student talks
Careers in Aerospace Panel
Travel support and free lodging possible for students

After Dinner Speaker:
Brian Hackney - KCBS-San Francisco
"A Life Not in Physics"

www.aps.org
Registration Begins August 7 at:
www.physics.calpoly.edu/aps-ca

Local Contact: calaps2012@calpoly.edu
Program Contact: Dr. Lynn Cominsky lynnc@universe.sonoma.edu

The scientific program will include invited talks by

- **Barbara Jones (IBM Almaden):** *Surprising Behavior of Magnetic Spins*
- **Chetan Nayak (UC Santa Barbara & Microsoft Station Q):** *Quantum Matters*
- **Pete Schwartz (Cal Poly SLO):** *Technology Summer School in Guatemala*
- **Steve Barwick (UC Irvine):** *Search for Extremely High Energy Neutrinos.*

The after-dinner speaker will be Cal Poly SLO physics alumnus **Brian Hackney (KCBS San Francisco):** *A Life Not in Physics*

Panel discussion: **Careers in Aerospace.**

Worth noting on this year's program is the career panel on physicists working in aerospace companies, including Space X, Northrop-Grumman and more. There will also be a student "Lunch with the Experts" on Saturday where pre-registered students will receive a free lunch and talk with members of the Executive Committee as well as Cal Poly faculty. **Awards** will also be given **for outstanding presentations** by undergraduate and graduate students!

A Message from the APS-CAL Section Chair

Dear Colleagues,

I am honored to serve as the 2012 Chair for the APS California-Nevada-Hawaii Section. Since I joined the Executive Committee in 2010, we have had excellent section meetings at both Caltech and SLAC that have been well attended and that have offered important opportunities to students to begin their professional preparation. Our next meeting will be held Nov. 2-3, 2012 at Cal Poly San Luis Obispo. A principal goal of our annual section meetings is to make them accessible to students especially undergraduates who may not otherwise be able to attend topical or national meetings of our Society. A large number of the contributed talks are by students discussing their own work, often for the first time. These sectional meetings are a great opportunity for students to meet their peers, to make contacts that may lead to future opportunities, and to experience physics as a profession. Many of us can remember our first APS talks and the learning and growth experiences they represented for our own careers.

Our meetings host prominent, inspiring speakers from all fields of physics. Attending a plenary lecture may serve as an introduction to an area of physics that further inspires a young member to explore that field of work, either in the classroom or in the laboratory. In addition, several years ago we introduced a topical panel to discuss possible careers that physics majors may pursue with their degree. In 2010, the panel focused on careers in medical physics, and last year our meeting featured a panel discussing possible careers working for startup companies. At the 2012 Annual Meeting, the career panel will feature aerospace. Our panelists share their personal life stories and the paths their own careers took. In doing so they are able to connect with students in the audience who find themselves at the point of deciding how they will pursue their own passions and dreams.

We welcome all participants to get more involved with the Section, especially students and others who would greatly benefit from being part of our Executive Committee. I look forward to meeting you at Cal Poly SLO in November!

Best Regards,

Lynn Cominsky,

Sonoma State University

2012 Chair, California-Nevada-Hawaii Section of APS

2011 Annual Meeting at SLAC (November 11-12) - Summary of Activities

The 2011 Fall meeting of the California-Nevada Section was held at the SLAC National Accelerator Laboratory on 11-12 November. SLAC is the home of the world's first hard X-ray free electron laser, the Linac Coherent Light Source (LCLS) as well as the SPEAR3 Synchrotron Light Source. The meeting was well attended with 240 registrants, about half of whom were students. The program featured four exciting plenary talks presented by Natalie Batalha (SJSU), Alessandra Lanzara (UCB), Steve Ritz (UCSC) and Joachim Stöhr (SLAC). The talks spanned a wide research spectrum, from the Kepler mission to search for planets outside the solar system, to new phenomena in superconducting oxide materials, through recent results from the Fermi Space Telescope as well as fascinating new scientific opportunities enabled by the LCLS X-ray source. The series of talks by distinguished scientists from the section was highlighted by the after dinner talk given by Nobel Laureate Burton Richter (SLAC) who gave a lively presentation on Energy Policy that was received with much interest and stimulated a lot of discussion during and after the talk.

The general scientific program that consisted of more than 100 presentations sorted in 11 different parallel sessions featured many excellent talks given during the two days of the meeting by students and young scientists. The contributed presentations were so good that the committee had difficulties choosing award winners among the students.

In addition to the scientific talks the meeting program featured two more highlights that were geared towards young scientists, providing them with information to decide on their future career paths. A special lunch was held on the first day of the meeting, where students could meet with SLAC and Stanford scientists to learn more about the daily routine of working as a scientist at a University or National Laboratory. For an hour students discussed with senior scientists about the most needed skills in everyday science life, and also about what researchers love most about their work and why they chose their career in scientific research.

The program on the second day featured a career panel. Given SLAC's location in the heart of Silicon Valley, the panel discussed "How to get a job in a Start-up Company." Panelists were William E White (SLAC) and Yi Cui (Stanford U.), who both have founded companies in the past as well as Jessa Lee and Andrei Terebilo (Pacific Biosciences) who moved from careers in Science to positions in the Biosciences industry. The panelists' brief introduction to their person and career was followed by questions from the audience and soon a lively Q&A and discussion session developed.

Finally, the meeting wrapped up with tours of the SLAC facilities that were offered on Saturday afternoon. There was much fascination in touring SLAC! The weather certainly made this weekend conference even more enjoyable. The next meeting of the California-Nevada Section will be November 2-3, 2012, at Cal Poly San Luis Obispo. We look forward to seeing you all there!

The [CAL-APS 2011 conference website](#) offers further details on the 2011 SLAC meeting.

Award Winners at the 2011 Annual Meeting

Undergraduate Awards

Steven Chu Award (Best Research)

1st Prize:

Theory – B. Busemeyer (UC Davis)

Exploring Half Metals in Li-based Half Heusler Alloys

Experiment – T. Pradhananga (CSU East Bay)

Direct Frequency Comb Spectroscopy of Alkali Atoms

2nd Prize:

Experiment – Melinda Soares (UC Santa Cruz)

*VERITAS Investigation of Very High Energy Emission from B2
1215+303*

Graduate Student awards

Kennedy Reed Award (Best Theoretical Research)

1st Prize (tie):

Thomas E. Baker (CSU Long Beach)

Jacobi Elliptic Functions and their Application in Classical Mechanics,

Superconductivity and Magnetism

Steve Wilburn (CSU Fresno)

A Conflict of Quantum Predictions Related to the Equivalence Principle

Margaret Burbidge Award (Best Experimental Research)

1st Prize (tie):

Andrea Rodarte (UC Merced)

*Spectral and polarization modulation of quantum dot emission in a one-
dimensional liquid crystal photonic cavity*

Erik Swanberg (UC Berkeley)

*Searching for the Decay and Half Life of the 7.6 eV Excited State in the
Thorium-229 Nucleus*

2nd Prize:

Amy Furniss (UC Santa Cruz)

*The VERITAS Extragalactic Sky: Contemporaneous Modeling of Very High
Energy Blazars with Constraints from Swift*

Congratulations to all!

Meetings & Decisions of the Executive Committee

The Executive Committee met face-to-face at the site of the next APS-CAL meeting in San Luis Obispo on March 10, 2012, hosted by the Cal Poly Physics Department.

Most of the meeting was spent discussing the plans for this year's annual meeting, Nov. 2-3, 2012. We were also offered a tour of the facilities that were under consideration for the various venues. Abstracts for the meeting will be due no later than September 28, 2012. Jennifer Klay, a former member at large of the executive committee, is the chair of the Local Organizing Committee.

Following the approval by the Section at the 2011 Annual meeting, the bylaws concerning the addition of Hawaii to our society was sent to the APS Council for their approval. The APS Council approved the matter and it was added to the ballot. It was passed by the membership.

We continued the discussion of a possible California Physics prize. However, we decided to postpone any decision to the November face-to-face meeting.

The executive committee decided that the APS-CAL section can no longer afford to print the newsletter or the meeting poster, but will post both documents electronically, and send an email to the membership informing them where to download them. We also agreed to mail paper copies to those who wrote and requested one. We may still print some meeting posters to send to institutions, rather than individual members.

Finally, it was decided that the 2013 meeting will be held at Sonoma State University. The 2014 meeting should be held somewhere in the Southern part of the state and no decision has been made at this time.

2011 Election News

The Nominating Committee for the 2011 APS-CAL Section election consisted of Lynn Cominsky (Chair), Virginia Trimble (Chair-Elect), Sergey Savrasov (Vice Chair), Warren Rogers (Member at Large) and Kenneth Ganezer (Secretary-Treasurer).

Results of the elections:

Councilor: Nan Phinney (SLAC)

Vice Chair: Douglas Singleton (CSU Fresno)

Members at Large: Hendrik Ohldag (SLAC), Kendall Mallory (Point Loma Nazarene University)

Student Representative: Erika Johannessen (Orange Coast College)

The integration of Hawaii into the California-Nevada section of the APS has been overwhelmingly approved. Welcome to our Hawaiian colleagues!

Annual APS Congressional Visit Day

By Kenneth Ganezer, Peter Winkler and Lynn Cominsky

The annual APS Capitol Hill Visit Day (CVD) took place on April 19, 2012 and was followed by the APS unit convocation on April 20-21 in the Greenbelt Marriott Hotel and the American Center for Physics (ACP). The California-Nevada section of the APS was directly represented at both of these events by section officers Peter Winkler (member at large) of the University of Nevada, Reno, Lynn Cominsky (Chair) from Sonoma State, Ken Ganezer (Secretary-Treasurer) from CSU Dominguez Hills and Divisional Officers Daniel Cox (DBP) from UCD, Art Ramirez (DCMP) from UCSC, and Chris Palmstrom (DMP) from UCSB.



From left to right: Chris Palmstrom (UCSB), Daniel Cox (UCD), Arthur Ramirez (UCSC), Lynn Cominsky (Sonoma State), Kenneth Ganezer (CSUDH) and Tyler Glembo (APS) in Representative Nancy Pelosi's office on Capitol Hill.

During the CVD the five of us from California (Cominsky, Ganezer, Ramirez, Cox, and Palmstrom) traveled as a group to visit our representatives; Peter Winkler visited his Congressional delegation from Nevada. Each one of us was assigned to organize a visit with the representative from the district in which they live as constituents of that representative and meetings were also scheduled with the two Senators for each state. The California group met with staff in the offices of Senators Barbara Boxer and Dianne Feinstein, and Representatives Lynn Woolsey, Henry Waxman, Sam Farr and Nancy Pelosi. We also got to meet in person with Rep. Lois Capps from the Santa Barbara area, who was very supportive of our requests. Peter Winkler visited the offices of the three Representatives from Nevada: Shelley Berkley, Mark Amodei, and Joe Heck, and was received by Representative Heck in person.

During an earlier meeting we were tutored by members of the APS office of public affairs to lobby for smaller cuts and eventually increased funding for physics research and for science research and education. We asked Democratic members of Congress to support President Obama's budget and Republicans to continue former President Bush's call for competitiveness for US science. We suggested that this could be achieved by pursuing a balance between discovery-based (fundamental) research, strategic research, and through supporting STEM education. After the CVD we attended a "thank you dinner" sponsored by the APS in the National Press Club building on 14th street in DC. We also distributed information from our home institutions to the two Senate offices and to the office of the representative from our home district. Above is a picture of the five California group members and one of the staffers from the APS Washington Office in Nancy Pelosi's office in the Cannon House Office Building.

The 2012 Unit Convocation and the California-Nevada section

by Kenneth Ganezer, Secretary Treasurer, CSU Dominguez Hills

The convocation was held on Friday and Saturday April 19-20 at the American Center for Physics (ACP) in Greenbelt, Maryland. The APS convocation started with a brief welcome from its president Robert Byer. Executive Officer Kate Kirby then presented the work and the staff of the APS. Joseph Serene (Treasurer/ Publisher), and Gene Sprouse (Editor in Chief) offered overviews on the services provided by their respective offices. Also included in the morning session was a presentation on international and public affairs. Parallel sessions for the Divisions, Forums, Topical Groups, and Sections were then held. We then broke into smaller groups for a two-hour discussion with APS staff on services available for APS units including information technology, meeting support, careers and membership, finance and development, special publications and media. Byer and Kirby ended the session with a co presentation of the APS strategic plan. The Saturday session concluded the convocation with an in-depth look at the Strategic Plan by the unit leaders and the APS executive board with an emphasis on the goals and objectives. Small breakout groups of four or five discussed how to move forward with its implementation.

The unit convocation featured two interesting talks: one was the "Special Lilienfeld Prize" talk on the future of particle physics and the other described a recent report issued by the President's Council of Advisors on Science and Technology (PCAST). Gordon Kane from the University of Michigan spoke about "*String theory and the real world, the Higgs Boson, and the theory of 'everything.'*" He accurately foretold the imminent announcement of the discovery of the Higgs boson, a very important advance in physics research. We also got to hear a report from James Gates from the University of Maryland and member of PCAST about their report *Engage to Excel: Producing One Million Additional College Graduates with Degrees in Science, Technology, Engineering, and Mathematics*. His talk provided several new ideas for increasing the numbers and percentages of persons with graduate and undergraduate degrees in physics and related areas, perhaps foretelling possible future advances in physics education which would indirectly lead to advances in physics research. The associated [report to the president from the Council of Advisors on Science and Technology](#) is available for download on the PCAST site.

I was pleasantly surprised to hear during the discussions following Jim Gates' talk that special publications and the media reported on significant success and efforts exerted to inspire interest among Junior High School and High School students in physics using comic books and special new comic book characters with physics-related names. (Note: APS' *Spectra* comic books are available at: <http://www.aps.org/programs/outreach/resources/index.cfm>).

While attending the unit convocation on Friday April 19 at the ACP I had the opportunity to briefly visit the AAPM headquarters and to walk by the AAPT national office, both of which share the ACP building along with the APS. I highly recommend that you visit these locations along with the APS next time that you happen to be near Washington DC.

Miscellaneous

Committees of the APS-CAL Section:

Executive Committee: Current members of the Executive Committee and their respective terms of office are listed on the following link:

<http://www.aps.org/units/cal/governance/officers/index.cfm>

Program Committee: Lynn Cominsky (Chair), Virginia Trimble and Andreas Bill.

Abstract Sorting Committee: Peter Winkler, Virginia Trimble, Nan Phinney, Peter Beiersdorfer, Ben Wang.

Nominating Committee: Lynn Cominsky (Chair), Virginia Trimble, Sergey Savrasov, Warren Rogers, Kenneth Ganezer, and Alexandre Bratkovski (APS-appointed external member)

Newsletter: Andreas Bill (Editor), Peter Beiersdorfer, Lynn Cominsky, Kenneth Ganezer.

Website of the APS-CAL Section

Our website <http://www.aps.org/units/cal/> contains regularly updated resources for students, including scholarships, career opportunities, and summer research programs. Please let us know (abill@csulb.edu) of any resource or institution not listed on the website and we will add it!

Future Section Meetings

Fall 2012 Meeting at Cal Poly San Luis Obispo on November 2-3.

The Fall 2013 Meeting will be held at the Sonoma State University. Exact dates will be announced later.