



Fall 2006 Newsletter

California Section of the American Physical Society

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Fall 2006 Section Meeting In Long Beach

Below is a list of all Executive Committee members.

QUANTUM CALIFORNIA

Fall Meeting of the California Section of the
American Physical Society
 Long Beach – October 27-28, 2006
 California State University Long Beach

Travel support is available for students and postdocs.
Free lodging possible for students.

Information on all matters at:
<http://aps-ca.lbl.gov>

Contact for practical questions: ckwon@csulb.edu Contact for program questions: apsmeet@LBL.gov

\$500 AWARDS

Grad Students		
	Kennedy Reed Award	Best Theoretical Research
	Margaret Burbidge Award	Best Experimental Research
Postdocs		
	Charles Kittel Award	Best Theoretical Research
	Luis Alvarez Award	Best Experimental Research
Undergrads		
	Steven Chu Award	Best Research

1st Prize \$500, 2nd Prize \$200

California Section APS Web Site

Our home page, <http://www.aps.org/units/cal/>, on the APS web site will be modified to include links to our (a) minutes, (b) newsletters, and (c) meetings. If you have corrections and/or suggestions for our home page, please let us know.

Election 2006

In July 2006, the following members were elected to the *Executive Committee*:

- Vice-Chair Dr. Howard Matis (LBNL)
- Secretary-Treasurer Prof. Shirley Chiang (UC Davis)
- Member-at-Large Prof. Nicholas Kioussis (CSUN)
- Member-at-Large Dr. Lin H. Yang (LLNL)
- Student Representative..... Mike Sarahan (UC Davis)

Officers

Chair: Michael Barnett
 Lawrence Berkeley Natl Lab
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Chair-Elect: Ching Yao Fong (UC Davis)
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Past Chair: Alan Kleinsasser (JPL)
Alan.Kleinsasser@jpl.nasa.gov

Vice Chair: Howard Matis (LBNL)
HSMatis@lbl.gov

Secretary-Treasurer: Shirley Chiang (UC Davis)
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Members-at-Large

Steve Applebaum (4D Neuroimaging)
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Giulia Galli (LLNL)
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Nicholas Kioussis (CSUN)
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Jeffrey Ostrick (Northrop Grumman)
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Lin H. Yang (LLNL)
lyang@llnl.gov

Student Member: Mike Sarahan (UC Davis)
msarahan@gmail.com

Report on the Fall 2005 Meeting in Sacramento

Program for the APS California Section Meeting, October 21-22, 2005

Friday, October 21, 2005

Morning Session 10:00-12noon, Mendocino Hall 3013

Complimentary coffee/pastry in La Creperie, north of
Mendocino Hall

Chair: Shirley Chiang

1. Intrinsically-Biased Electrocapacitive Catalysis -
Daniel Sheehan
2. Resonance Processes in Electron-CF Collisions -
Cynthia Trevisan
3. Charge and Spin Ordering in Antiferromagnetic
Insulator Na_{0.5}Co₂ - **Kwan-Woo Lee**
4. Magnetization Reversal in Arrays of Fe Nanodots -
Randy Dumas
5. Metal-Insulator Transition Away from Commensurate
Filling - **Norman Paris**
6. A Comparative Molecular Simulation Study of Glass
Formers ortho-Terphenyl in Bulk and Free
Standing Films - **Jayeeta Gosh**
7. Magnetization reversal and nanoscopic Magnetic
phase separation in doped perovskite cobalites
- **Joseph Davies**
8. Interaction Corrections to the Fermi Surface in the
t-t' Hubbard Model - **Rafael Roldan**
9. Scanning Tunneling Microscopy Imaging of Crown-
Ether Molecules on Pd(111) - **Donell Hoffmann**

Afternoon Session 1:00-4:00pm, Mendocino Hall 1003

Chair: Karsten Heeger

1. Limit on Cosmic String from CMB Anisotropy -
Eunhwa Jeong
2. Are Recent Cosmological Velocity Surveys
Consistent with Each Other - **Devdeep Sarkar**
3. Improved Spatial Resolution in Thick, Fully
Depleted CCDs with Enhanced Red Sensitivity -
Jessamyn Fairfield
4. Reactor Phase and Future Goals of KamLAND -
Thomas O'Donnell
5. The CUORE neutrinoless double-beta decay
experiment - **Michelle Dolinski**
6. Surrogate Method for Unstable Nuclei -
Vesselin Gueorguiev
7. The Integration of Experimental and Simulations
Studies of the Superconducting ECR
Ion Source VENUS - **Damon Todd**

Coffee Break 2:45-3:00pm

Chair: Jeffrey Ostrick

1. Interference in Vector Meson Production in Ultra-
Peripheral Collisions from STAR - **Brooke Haag**
2. Using Rutherford Back Scattering Techniques to
Measure Light Elements on Teflon Filters -
Jaspinder Singh
3. New Technology for in-situ CMP Slurry Monitoring
- **Elmira Ryabova**
4. Dissociative Recombination of Ne₂⁺
molecular ions - **Valery Ngassam**
5. Dissociative Combination of Rare Gases -
Jeanna Royal
6. Ultrafast dynamics of the coherence of the coupled
quantum-hall light system - **Keshav Dani**
7. Doubly-Excited States of the Be Atom in the MCRR
PA - **Keh-Ning Huang**

Plenary Session 4:30-6:30pm, Mendocino Hall 1003

Chair: Alan Kleinsasser

Welcome from CSUS, Gary Shoemaker

1. Dr. Kennedy Reed "The Dark Side of the Universe:
New Physics"
2. Prof. Anthony Tyson "From Superconductors to
Superstrings"
3. Dr. Barbara Levi "The Challenges of Writing for
Physics Today"

Banquet 7:00pm, Orchard Suite, University Union, 2nd floor

Introduction by Alan Kleinsasser

After-dinner Talk: The Mars Exploration Rover Mission,
Dr. Albert Haldemann

Saturday, October 22, 2005

Morning Session 9:00-12noon, Mendocino Hall 1015

Chair: Reina Maruyama

1. Coincidence in the two-photon spectra of Li and Li₂
- **William DeGraffenreid**
2. Cavity with a deformable mirror for tailoring the
shape of the eigenmode - **Peter Beyersdorf**
3. Shaping Coherent XUV Radiation in Space and Time
- **Thomas Pfeifer**
4. Hadronic Spectrum of the $\tau \rightarrow \pi^+ \pi^0 \nu_{\tau}$ Decay - **Rahmat Rahmat**
5. Beam-Based Plasma Wakefield Acceleration -
Rasmus Ischebeck
6. Breaking the Genetic Code with Atomic Force
Microscope Needle - **Shahid Qamar**

7. The MuCap Experiment: Status and Plans - **Tom Banks**

Coffee Break 10:45-11:00am

Chair: Carel Boekema

1. SUGRA Interactions within Flavor Triplets - **Joseph Towe**
2. Fermion Generations, Masses and Mixing from a 6D Braneworld World Model – **Silvestre Aguilar**
3. An Origin of Gravity in Blocked Electromagnetism - **Geoffrey Holstrom**
4. Real-Time Microscopy of Phase Transitions on Pb/Ge(111) – **Shirley Chiang**
5. Angular Dependence of Exchange Anisotropy on Cooling Field in Epitaxial FeF₂/Ni – **Justin Olamit**

**Afternoon Session 1:00-4:00pm,
Mendocino Hall 1015**

Chair: Ching Fong

1. CdSe Quantum Dots - **Jonathan Muliang**
2. Simulating Decoherence and Dissipation in one-dimensional Quantum Lattice Systems **Michael Zwolak**
3. Interacting Charged Quasiparticles in a Strong Magnetic Field: Analytical Results for Bound States in the Lowest Landau Level - **Alex Todd**
4. Generalized Feynman-Kikuchi Model of Superfluidity in 2-D - **Aleksander Zujev**
5. Magnetism in Superconducting Ti₂223: A Flux-Trapping Study - **T Iman**
6. Magnetism Near and in Vortex Cores of Cuprate Superconductors - **B Launspach**

Coffee Break 2:30-2:45pm

Chair: Shirley Chiang

1. A Derivation of Dirac's Equation From a Model of an Elastic Medium - **John Baker**
2. $GM=tc^3$:Space/Time, Supernovae and the CMB - **L Riofrio**
3. Introducing the Theory of Interrelativity - **Bruce Cunningham**
4. Consequences of Einstein's Concept of Space as Energy Field - **Jacques Leibovitz**

5. Hidden Kinetic Energy and Mass-Electric Principle - **Phillip Chu**
6. Superluminal Quantum Models of the Photon and Electron - **Richard Gauthier**

Note: Prizes will be awarded for the best student research talks. Prize Winners will be announced within 1-2 weeks of the meeting.

B. Student Awards

Six judges evaluated the talks and the following e-mail was sent to student participants.

“Dear conference participants,

Thank you for participating in the 2005 APS California Section Meeting in Sacramento. I hope you enjoyed the meeting as much as we did. We heard many excellent student talks and had a broad representation of research fields.

We would like to take this opportunity to congratulate the prize winners of the best student talks in the following categories.”

Best Theoretical Research (Kennedy Reed Award)

1. Kwan-Woo Lee (UC Davis)
2. Alex Todd (CSUB)
3. Jonathan Muliang (UC Davis)

Best Experimental Research (Margaret Burbidge Award)

1. Randy Dumas (UC Davis)
2. Donell Hoffman (UC Davis)
3. Justin Olamit (UC Davis)

Best Presentation: Speaking (Luis Alvarez Award)

1. Michael Zwolak (Caltech)
2. Brooke Haag (UC Davis)
3. Jessamyn Fairfield (LBNL)

Best Presentation: PowerPoint (Steven Chu Award)

1. Keshav Dani (LBNL)
2. Shahid Qamar (Arizona State)
3. Jeanna Royal (UC Davis)

Best Graphics (Charles Kittel Award)

1. Tom Banks (UC Berkeley)
2. Jaspinder Singh (UC Davis)
3. Joseph Davies (UC Davis)

C. General Comments on the Fall 2005 Sacramento Meeting

The physics faculty and staff at California State University Sacramento were outstanding hosts for our Meeting.

Wireless Internet access (free) was available. Among other important benefits, we were able to admire the first batch of pictures that Karsten posted a few minutes after he announced them. This service will presumably be more and more routine in future meetings.

Over View by the Chair of the Executive Committee

After the small meeting in 2004, the energies of this Section were concentrated on providing a successful meeting for 2005. That was accomplished, thanks to the efforts of Michael Barnett, Karsten Heeger, Gary Shoemaker, and several others.

The Executive Committee meeting held in Los Angeles at the APS March 2005 Meeting was important in keeping momentum going. However, not everyone attends the March meeting, and I know of no suitable draw this year that would enable us to have a sit-down meeting in the spring.

We need to keep up the efforts that resulted in a successful Fall 2005 Meeting, while pushing forward in other areas that have languished (e.g., identification of new committee members and officers).

The only practical immediate means we identified for keeping up communication is e-mail. A conference call at some point would be useful as well. One suggestion to reduce confusion was to route e-mail through the Secretary. I also brought up the idea of an Internet Message Board. If anyone likes that idea and has the resources to set it up, please step forward. Additional ideas are welcome, of course.

Jeffrey Ostrick raised the point that we could get more out of present (or future) Officers (and others) with better delegation of tasks. There was some improvement connected with the Fall 2005 Meeting, but I agree with this suggestion in general.

Purpose and Mission

With a large number of top research universities, state universities, several national laboratories, government agencies (NASA, USGS, etc), computing industry and other high-technology companies, California offers a unique spectrum of opportunities for physicists. I would like to see the APS CA Section Meeting try to bring together

physicists from these different areas and provide students and postdocs with an opportunity to learn about the broad spectrum of activities and career choices for physicists.

This year's meeting featured an exciting and diverse plenary session with topics ranging from physics in Africa, dark energy in the universe, to science communication and writing for *Physics Today*. In the future, we may also want to consider inviting industrial physicists to talk about their work.

In my view, the APS CA Section Meeting should aim to

- (a) provide students and postdoc with an opportunity to report their research and practice giving conference talks;
- (b) bring together physicists from research universities, industry, national labs, and state universities (perhaps entice industrial and national lab physicists to attend through invited talks); and
- (c) develop closer working relationships among physicists from different institutions in California.

Sponsoring and Financial Support

The report of our treasurer at the Executive Committee meeting shows that the Section is in good financial health. Nevertheless, as we try to grow the CA Section Meeting we may want to consider soliciting support and sponsorship for these meetings from industrial partners. I imagine we could try to approach companies with an interest in recruiting physicists and ask them to sponsor coffee breaks. In return, they would be allowed to distribute informational material during the breaks at the conference. If selected carefully, information from these industrial partners may be of interest to postdocs and students seeking a career outside academia.

Acknowledgements

The members of the Executive Committee and Karsten Heeger provided the contents for this Newsletter.

Photo Album for the Fall 2005 Sacramento Meeting

