The American Physical Society gratefully acknowledges

THE KAVLI FOUNDATION

for sponsoring the following sessions commemorating 100 years of Superconductivity.

The Kavli Foundation Special Symposium:
Nobelist Perspectives on 100 Years of Superconductivity
Session J3 • Tuesday, March 22, 2011 at 11:15am
Ballroom A3

The Kavli Foundation Special Symposium:
Superconductivity Centennial: Future Research Opportunities
Session Q3 • Wednesday, March 23, 2011 at 11:15am
Ballroom A3
The APS gratefully acknowledges

AIP Advances

Springer
the language of science

for sponsoring activities at the March Meeting.
The APS Officers and Meetings Department Staff extend sincere thanks to the unit program chairs, abstract sorters and focus session organizers who, during the past year, gave so generously of their time and expertise in sorting abstracts and organizing the program for the March Meeting 2011.

MARCH MEETING 2011 PROGRAM COMMITTEE

March Meeting Program Chair: Warren Pickett, University of California, Irvine; DAMOP: Lincoln Carr, Colorado School of Mines; DBP: Aihua Xie, Oklahoma State University; DCMP: Samuel Bader, Argonne National Laboratory; DCOMP: Amy Bug, Swarthmore College; DCP: K. Birgitta Whaley, University of California, Berkeley; DFD: Kenny Breuer, Brown University; DMP: Peter Schiffer, Pennsylvania State University; DBP: Lia Merminga, TRIUMF; DPOLY: Darrin J. Pochan, University of Delaware; FED: Chandralekha Singh, University of Pittsburgh; FGSA: Megan Comins, Cornell University; FHP: Martin Blume, APS, Retired, and Brookhaven National Laboratory; FIAP: Phillip Wyatt, Wyatt Technology Corporation; FIP: Harvey B. Newman, CERN; FPS: Brian Schwartz, CCNY; GERA: Alex King, Ames Laboratory; GIMS: Eric Hudson, Massachusetts Institute of Technology; GMAG: Andy Kent, New York University; GQI: Christopher A. Fuchs, Perimeter Institute; GSNP: Corey OlHern, Yale University; COM: Louis-Gregory Strolger, Western Kentucky University; CSWP: Patricia Burchat. Stanford University

MARCH MEETING 2011 ABSTRACT SORTERS

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<table>
<thead>
<tr>
<th>PROGRAM ACKNOWLEDGMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MARCH MEETING 2011 FOCUS SESSION ORGANIZERS</strong></td>
</tr>
<tr>
<td>20 Years of APS Quantum Cryptography; Where Do We Stand Now?</td>
</tr>
<tr>
<td>Active Biopolymers and Biomaterials</td>
</tr>
<tr>
<td>Advances in Ion Trap Quantum Computation</td>
</tr>
<tr>
<td>Advances in Scanned Probe Microscopy I; Novel Approaches and Ultrasensitive Detection</td>
</tr>
<tr>
<td>Advances in Scanned Probe Microscopy II; High frequencies and Optical Techniques</td>
</tr>
<tr>
<td>Advances in Scanned Probe Microscopy III; Scanning Probe Spectroscopic Techniques</td>
</tr>
<tr>
<td>Assembly, Structure, and Instabilities in Polymer Films, Network Films, and Interfaces</td>
</tr>
<tr>
<td>Biomechanics; From Subcellular to Multicellular Scales</td>
</tr>
<tr>
<td>Bulk Properties of Complex Oxides</td>
</tr>
<tr>
<td>Carbon Nanotubes &amp; Related Materials</td>
</tr>
<tr>
<td>Computational Design of New Materials</td>
</tr>
<tr>
<td>Continuum Descriptions of Particulate Media</td>
</tr>
<tr>
<td>Coordination, Coherence and Synchronization through Hydrodynamic Interactions</td>
</tr>
<tr>
<td>Coupled Transport Processes in Biology, Geology, and Emerging Technology</td>
</tr>
<tr>
<td>Dielectric, Ferroelectric &amp; Piezoelectric Oxides</td>
</tr>
<tr>
<td>Directed Assembly of Hybrid Nanomaterials</td>
</tr>
<tr>
<td>Dopants and Defects in Semiconductors</td>
</tr>
<tr>
<td>Dynamics of Polymers: Phenomena Due to Confinement</td>
</tr>
<tr>
<td>Electricity-to-Light Conversion; Solid State Lighting</td>
</tr>
<tr>
<td>Electron, Ion, and Exciton Transport in Nanostructures</td>
</tr>
<tr>
<td>Electronic Structure and Applications to Energy Conversion</td>
</tr>
<tr>
<td>Epitaxial Graphene; Growth, Properties, and Devices</td>
</tr>
<tr>
<td>Exploring Quantum Phases in Cold Atom Systems</td>
</tr>
<tr>
<td>Extreme Mechanics; Elasticity and Geometry</td>
</tr>
<tr>
<td>Friction, Fracture and Deformation Across Length Scales</td>
</tr>
<tr>
<td>Frustrated and Low Dimensional Magnetism</td>
</tr>
<tr>
<td>Fundamental Issues in Interfacial Charge Transport for Energy Applications</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Program Acknowledgments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Graphene Structure, Dopants and Defects</strong></td>
</tr>
<tr>
<td><strong>Growth, Structure, Dynamics, and Function of Nanostructured Surfaces and Interfaces</strong></td>
</tr>
<tr>
<td><strong>Imaging and Modifying Materials at the Limits of Space and Time Resolution</strong></td>
</tr>
<tr>
<td><strong>Information Processing in Biological Systems</strong></td>
</tr>
<tr>
<td><strong>Interfaces In Complex Oxides</strong></td>
</tr>
<tr>
<td><strong>Iron Based Superconductors and Related Compounds</strong></td>
</tr>
<tr>
<td><strong>Jamming; Theory and Experiment</strong></td>
</tr>
<tr>
<td><strong>Kinetic Control of Solution Assemblies</strong></td>
</tr>
<tr>
<td><strong>Magnetic and Spin Ordering in Atomic and Optical Systems</strong></td>
</tr>
<tr>
<td><strong>Magnetic Nanostructures; Materials and Phenomena</strong></td>
</tr>
<tr>
<td><strong>Magnetic Oxide Thin Films</strong></td>
</tr>
<tr>
<td><strong>Materials at High Pressure</strong></td>
</tr>
<tr>
<td><strong>Micro and Nanofabrication Probes of Cancer Cell Evolution</strong></td>
</tr>
<tr>
<td><strong>Multiscale Modeling</strong></td>
</tr>
<tr>
<td><strong>Nanocomposite Physics</strong></td>
</tr>
<tr>
<td><strong>New Ways of Communicating Physics</strong></td>
</tr>
<tr>
<td><strong>Non-Equilibrium Insights into Single Molecules and Cell Function</strong></td>
</tr>
<tr>
<td><strong>Non-Equilibrium Physics With Cold Quantum Gases</strong></td>
</tr>
<tr>
<td><strong>Novel Instrumentation &amp; Measurements for Biomedical Research</strong></td>
</tr>
<tr>
<td><strong>Novel Magnetic Devices</strong></td>
</tr>
<tr>
<td><strong>Novel Single-Molecule Approaches to Biology</strong></td>
</tr>
<tr>
<td><strong>Optical Properties of Nanostructures and Metamaterials</strong></td>
</tr>
<tr>
<td><strong>Organic Electronics, &amp; Photonics</strong></td>
</tr>
<tr>
<td><strong>Physics of Active Materials</strong></td>
</tr>
<tr>
<td><strong>Physics of Energy Storage Materials</strong></td>
</tr>
</tbody>
</table>
# Table of Contents

## General Information
- Participating APS Units
- Americans with Disabilities Act Statement
- Registration Location/Hours
- Badge Monitoring
- Shuttle Bus Service
- Abstract Look-up Stations
- Email Service
- Wireless Service
- A-V Office
- Speaker-Ready Room
- Audio Visual Equipment
- Job Fair
- APS Membership Booth
- APS Souvenir Store
- City of Dallas Visitor Center
- APS Exhibit Show/APS Lounge/Wine & Cheese Receptions
- Press Room
- Press Conference Room
- Parent’s/Children’s Quiet Room

## Pre-Meeting Programs
- DPOLY Short Course:
  - Advances in Scattering Techniques: Theory and Applications in Polymer Physics
- Tutorials
- Professional Skills Development Workshop for Women Physicists
- Workshop: Physics Careers in Industry and Government
- Industrial Physics Forum (IPF)
- Industrial Application of Superconductivity: Current Status, Future Prospects
- Sunday IPF/FIAP Sessions
- Workshop: Improving Your Skills as a Research Mentor
- Careers in Physics Workshop

## Special Sessions
- IPF/FIAP Sessions
- History of Superconductivity from Discovery to Kammerlingh Omnes in 1911
- Physics Community Outreach:
  - Small wonders: Bringing Nano to the Public Through Museum Partnership
  - Kavli Foundation Special Symposium:
    - Nobelist Perspectives on 100 Years of Superconductivity
    - Kavli Foundation Special Symposium:
      - Superconductivity Centennial: Future Research Developments
- Nobel Prize Session
APS MEETINGS / EVENTS ................................................................. 16
Contact Congress ........................................................................... 16
Gallery of Non-Linear Images .......................................................... 16
APS Prizes & Awards Ceremonial Session ....................................... 16
Welcome Reception ........................................................................... 16
APS Journals Booth ......................................................................... 16
Talk to the APS Journal Editors ...................................................... 16
Wine and Cheese Receptions ........................................................... 16
Estate Planning Seminar .................................................................. 17
APS Editorial Q & A ....................................................................... 17
The Federal Deficit: What it Means for Your Science Funding ........ 17
Meet the Editors of AIP and APS Reception .................................... 17
Trends in the APS Publication Physics ............................................ 17
Physics Sing-along/Listen-along ....................................................... 17

APS EVENTS FOR SPECIAL GROUPS ........................................... 18
Companion's Welcome Breakfast ...................................................... 18
Future of Physics Days ..................................................................... 18
DCMP/DMP/DCOMP/DCP New Fellows and Award Winners Reception 18
Forum on International Physics (FIP) Reception .............................. 18
COM/CSWP Networking Reception .................................................. 19
Water Cooler Discussion: APS Minority Bridge Program ................ 19
High School Physics Teachers Day ................................................... 19
Tutorial for Authors and Referees .................................................... 19
Graduate Student Lunch with the Experts ....................................... 19
Graduate Student Lunch Topics ...................................................... 19
CSWP/FIAP Networking Breakfast for Women in Industry ............... 20
Alumni Reunions ............................................................................ 21

SATELLITE MEETINGS ................................................................. 21

FOCUS SESSIONS ........................................................................ 22

POSTER SESSIONS ..................................................................... 29

PROGRAM FORMAT ..................................................................... 30

2011 PRIZES AND AWARDS ....................................................... 32

MARCH MEETING 2011 EXHIBITORS & SHOW GUIDE ............... 34

EPITOME ....................................................................................... 44

MAIN TEXT .................................................................................. 77

AUTHOR INDEX ......................................................................... 628

MAPS ........................................................................................ END OF ISSUE
General Information
We welcome you to the March Meeting 2011 in Dallas, Texas. The headquarters hotel is the Hyatt Regency Reunion Hotel in downtown Dallas. The March Meeting technical sessions will be held in the Dallas Convention Center, and APS-sponsored meetings and satellite meetings will take place at the Hyatt. Ground transportation from the conference hotels to the convention center is available via APS sponsored shuttle bus service. A special “courtesy” bus will be available in the evening to take guests staying at the Hyatt to and from the West End, where they will find restaurants and shops.

An outstanding scientific program will be presented consisting of more than 100 invited sessions and 550 contributed sessions at which approximately 7,500 papers will be presented. In addition, pre-meeting tutorials and workshops will be offered. A larger and enhanced exhibit show will round out the program during which attendees can visit vendors who will be displaying the latest products, instruments and equipment, and computer software, as well as scientific publications related to the research and application of physics.

Participating APS Units
Divisions: Condensed Matter Physics, Materials Physics, Polymer Physics, Chemical Physics, Biological Physics, Fluid Dynamics, Laser Science, Computational Physics and Atomic, Molecular and Optical Physics, Physics of Beams

Topical Groups: Instrument and Measurement Science, Magnetism and Its Applications, Statistical and Nonlinear Physics, Quantum Information, Energy Research and Applications

Forums: Industrial and Applied Physics, Physics and Society, History of Physics, International Physics, Education and Physics; Graduate Student Affairs

Americans with Disabilities Act Statement
The APS wishes to take any steps required to ensure that no individual with a disability is excluded, denied services, segregated or otherwise treated differently due to the absence of auxiliary aids and services identified in the Americans with Disabilities Act.

Registration Location/Hours
Convention Center, Lobby D

The APS Registration Desk will open and close at the following times.

Sunday, March 20 ......................................2:00pm–7:00pm
Monday, March 21 ....................................7:00am– 5:00pm
Tuesday, March 22 ....................................7:00am–5:00pm
Wednesday, March 23 .............................7:00am–4:00pm
Thursday, March 24 .................................7:00am–3:00pm
Friday, March 25 .......................................7:00am–10:00am

Badge Monitoring
All attendees must register for the meeting. Attendees must wear their badges at all times. Security personnel will be checking for badges before allowing admission to the sessions and the exhibit show. Attendees without badges will not be admitted to sessions and exhibits. If you lose your badge, please go to the APS registration desk for a new one. We will give you one replacement badge free. After that replacement badges will cost $10.00.

Shuttle Bus Service
APS will provide shuttle bus service from the hotels to the Dallas Convention Center. Shuttle bus service will begin from the hotels to the convention center on Sunday, March 20 at 1:30pm. The last trip from the hotels to the convention center on Sunday will be at 6:30pm. Registration opens on Sunday at the convention center at 2:00pm in Lobby D. A schedule of the shuttle busses will be available at your hotel upon your arrival, and printed bus schedules will be available at the convention center when you arrive to register.

Abstract Look-up Stations
If you want to look up an abstract, abstract look-up stations are located throughout the corridors of the convention center for this purpose. These computers do not include e-mail access or access to the internet.
Email Service
An email pavilion will be set up in the exhibit hall for attendees to retrieve and send email messages on Monday, Tuesday, and Wednesday during exhibit hours only. On Thursday, email service will be available near the APS registration desk. Email access is available in the business offices at most hotels for a fee. Please be advised that email access is provided as a service to attendees, and that we cannot provide unlimited access to email stations, both in terms of the number of e-mail stations provided and the times they are available.

Wireless Service
APS will sponsor free wireless in the public space and the exhibit hall in the Convention Center. Wireless service will not be available in the meeting rooms.

The network name is APS wifi. It is an open network, so no password is needed.

A-V Office
Convention Center, A201-202

Speaker-Ready Room
Convention Center, C150

The speaker-ready room will be open as follows:
- Sunday, March 20 ................. 1:00pm–7:00pm
- Monday, March 21 ................. 7:00am–5:00pm
- Tuesday, March 22 ................. 7:00am–5:00pm
- Wednesday, March 23 ............ 7:00am–5:00pm
- Thursday, March 24 .............. 7:00am–5:00pm
- Friday, March 25 ................. 7:00am–12:00noon

Audio Visual Equipment
All rooms will be equipped with an LCD projector, overhead projector, screen, lavaliere microphone, and pointer. If you plan on doing a PowerPoint presentation, please bring your program on your own laptop computer, and be sure to visit the Speaker-Ready Room to run through your presentation to ensure that it goes smoothly during the session. (We recommend that you also bring your presentation on vugraphs as a back-up to your computer presentation). When you arrive at the session in which you are speaking, if you are using the LCD projector, please have your laptop turned on and ready to go. If you require additional equipment it can be rented by ordering directly through APS's contracted A-V company during the meeting. The cost of additional equipment must be covered by the speaker. Note: you are not allowed to bring/use your own projectors at the meeting.

Job Fair
Convention Center, Exhibit Hall D

Monday, March 21 ..................... 10:00am–5:00pm
Tuesday, March 22 ..................... 10:00am–5:00pm

The Job Fair is the best place to connect with employers and job seekers from all areas of physics, engineering and related physical sciences.

Attendees are encouraged to visit the Job Fair to take advantage of our many recruiting services:
- Showcase your company with a Recruitment Exhibit
- Search our high-powered job and resume database
- Network and interview with companies and job candidates on-site
- Create alerts to inform you of new resumes and jobs
- Manage your interview calendar online

For additional information, please contact Alix Brice at 301-209-3187 or at jobfairs@aps.org or visit http://www.aps.org/meetings/march/events/jobfair/index.cfm.

APS Membership Booth
Convention Center, Lobby D

Monday through Wednesday ........ 8:00am–5:00pm
Thursday ........................................... 8:00am–3:00pm

The APS Membership Department staff will be on hand to answer questions about APS Membership, journal subscriptions and other new services.

APS Souvenir Store
Convention Center, Lobby D

Monday through Wednesday ........ 8:00am–5:00pm
Thursday ........................................... 8:00am–3:00pm

Come browse our t-shirts, bumper stickers and more.

City of Dallas Visitor Center
Located in main lobby of the Dallas Convention Center. Stop by for information about the city, sight-seeing, restaurants, and more.
MARCH MEETING 2011

Business Center at the Convention Center
Two locations: Building A, 2nd level; and A Lobby, Level 1

Monday through Wednesday ...............10:00am–4:00pm
Thursday ..............................................................10:00am–2:00pm

APS Exhibit Show/APS Lounge/Wine & Cheese Receptions
Exhibit Hall D

Monday, March 21 ..................................10:00am–5:00pm
Tuesday, March 22 .................................10:00am–5:00pm
Wednesday, March 23 ...........................10:00am–4:00pm

The exhibit show is open Monday through Wednesday. The exhibits are an important adjunct to the meeting, offering information on a wide variety of physics-related products and services. In addition, book and periodical publishers will be participating as exhibitors. The poster sessions, and food concessions will be located in the exhibit hall, as will the E-mail Pavilion. A wine and cheese reception will be held in the exhibit hall on Monday and Tuesday from 4:00pm–5:00pm. Plan to stop by to visit the exhibits, view the posters and enjoy the refreshments.

NOTE: You must display your badge to be admitted to the exhibit hall.

Press Room
Convention Center, A118–119

Monday through Thursday .......................8:00am–5:00pm
Friday ................................................................8:00am–12:00noon

Phone: 214-853-8001
Fax: 214-853-8000

Press Conference Room
Convention Center, A125–126

A schedule of news conferences can be obtained from the Press Room.

Parent’s/Children’s Quiet Room
Convention Center, A135–136

At the March Meeting APS will designate a small room for parents who are bringing young children to the meeting. The purpose of the room is to provide a quiet place for parents of infants and young children to come for quiet time and relaxation with their children. This is not intended to be a playroom. The room will be furnished with comfortable furniture and water.
DPOLY Short Course: Advances in Scattering Techniques: Theory and Applications in Polymer Physics

(Pre-registration only—no on-site registration. Registration deadline February 18.)

Saturday, March 19
1:00pm–5:30pm

Sunday, March 20
9:00am–5:00pm
Convention Center, C151

Fees (pre-registration only)
APS Member $150
Students/Post Docs $100
Non-Member $250

Tutorials

Sunday, March 20
All pre-meeting tutorials will be held in the Dallas Convention Center.

Tutorial Program Chair
Mark Johnson, NRL, Washington, DC

Registering for Tutorials
You must sign up for pre-meeting tutorials when you pre-register for the March Meeting—registration deadline February 18. You cannot register for tutorials on-site. Eight half-day tutorials will be presented Sunday, March 20. You may select one tutorial from the morning schedule and one from the afternoon schedule.

Tutorial Fees
Each tutorial is $125 ($65 for students).

Morning Tutorials
8:30am–12:30pm

Tutorial #1
Convention Center, Room C148
Spintronics

Tutorial #2
Convention Center, Room C147
Complex Oxides

Tutorial #3
Convention Center, Room C155/156
Topological Insulators

Tutorial #4
Convention Center, Room C149
Microfluidics

Afternoon Tutorials
1:30pm–5:30pm

Tutorial #5
Room C155/156
Graphene

Tutorial #6
Convention Center, Room C148
New Directions in Biological Physics

Tutorial #7
Convention Center, Room C147/154
Quantum Simulation and Computing with Atoms

Tutorial #8
Convention Center, Room C142
GPU Programming Applied to Condensed Matter

Professional Skills Development Workshop for Women Physicists

Sunday, March 20
8:00am - 5:00pm
Hyatt Hotel, Moreno A/B

The Professional Skills Development Workshop is a one-day workshop offering training on effective negotiation and communication skills for women post doctoral associates and tenure-track women faculty in physics. Workshops will be led by professional facilitators using an interactive format that encourages highly personal learning. Lunch is provided and a reception for participants follows the workshop.

Workshop: Physics Careers in Industry and Government

Sponsored by the Forum on Industrial and Applied Physics (FIAP)

Sunday, March 20
8:30am–12:30pm
Convention Center, C146

Sponsors
Forum on Industrial and Applied Physics (FIAP)
Texas Section of the APS (TSAPS)
APS Careers Services
**Industrial Physics Forum (IPF)**

*Industrial Application of Superconductivity: Current Status, Future Prospects*

**Sunday, March 20**
**Monday, March 21**

*Convention Center, Ballroom C1*

**Cost:** Free

The forum is free for registered March Meeting attendees.

**Sponsors:**
AIP Industrial Physics Forums  
APS Forum of Industrial and Applied Physics  
American Physical Society

**Forum Description**

The AIP Corporate Associates and the APS Forum on Industrial and Applied Physics will feature four sessions celebrating the centennial of superconductivity. Speakers from industry, national labs, and universities will discuss applications of conventional and high Tc superconductivity ranging from electric power, MRIS, SQUIDs, astronomical detectors, transportation, instrumentation, and magnets.

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**Sunday IPF/FiAP Sessions**

**History, Current Status, Future Prospects**

**Session 1A**

1:00pm–3:00pm  
*Convention Center, Ballroom C1*

Seamus Davis, Brookhaven National Laboratory; Cornell University  
Paul Grant, IBM; EPRI  
Malcolm Beasley, Stanford University

**Large-Scale Applications**

**Session 1B**

3:30pm–5:30pm  
*Convention Center, Ballroom C1*

George Crabtree, Argonne National Laboratory  
Alex Malozemoff, American Superconductor  
Kathleen Amm, General Electric

---

**Workshop: Improving Your Skills as a Research Mentor**

**Sunday, March 20**

1:30pm–5:30pm  
*Hyatt Hotel, Pegasus A*

**Cost:** Free

Presenter: Eric Hooper  
Astronomy & Physics  
University of Wisconsin-Madison

**About the Mentoring Workshop**

Common Mentoring Questions

- How do you effectively mentor individuals at different stages of their careers?
- Are you ready to address the NSF’s new requirement about mentoring post-docs in your next proposal?
- Can you learn to become a more effective mentor through training?

For many academics, typical answers to these questions include, “I try to make adjustments based on the trainee, but I don’t have a specific plan”; “Yeah, I’d better start thinking about that”; and “There’s training?”

**Mentoring Preparation**

Scientists often are not trained for their crucial role of mentoring the next generation. Based on a research mentor training program developed at the University of Wisconsin-Madison and modified for Physics by the American Physical Society, this workshop is designed to help you start to become a more effective mentor. Through case studies, activities and small-group discussion, we will:

- Learn the core elements of mentoring.
- Be able to more clearly define your role as a mentor.
- Share mentoring challenges and solutions with one another.
- Practice diverse communication strategies.
- Articulate expectations for your mentoring relationship.
- Develop practical tools and strategies that you can implement immediately to become a more effective mentor.

Learn how to implement a more extensive version of this seminar back home using an interactive “shopping cart” style website that contains all of the materials and instructions on how to use them.
Careers in Physics Workshop

Sunday, March 20
5:00pm–8:00pm
Convention Center, C140

Cost: Free
Susan Stringer, Vice President of the Brighton Group, will present a workshop on skills and strategies for physicists to help take their job search to the next level. Topics will include resume building and writing, interviewing, job search strategies, networking strategies, and more! The workshop is free to all meeting attendees. Refreshments will be served.
**SPECIAL SESSIONS**

**IPF/FIAPSessions**
Sponsored by Industry Physics Forum (IPF) and APS Forum on Industrial and Applied Physics (FIAP)

**Small-Scale Applications**

**Session A5**  
**Monday, March 21**  
**8:00am–11:00am**  
*Convention Center, Ballroom C1*

Michel Devoret, Yale University  
Oleg Mukhanov, Hypress  
Paul Richards, University of California, Berkeley  
John Clarke, University of California, Berkeley  
Venky Venkatesan, Neocera and National University of Singapore

**Frontiers in Physics**

**Session D5**  
**Monday, March 21**  
**2:30pm–5:30pm**  
*Convention Center, Ballroom C1*

Linda Young, Argonne National Laboratory  
Joe Stroscio, NIST  
Shoucheng Zhang, Stanford University  
Barbara Jacak, Stonybrook University  
Deborah Jin, JILA; University of Colorado at Boulder

**History of Superconductivity from Discovery to Kammerlingh Omnes in 1911**

**Session B3**  
**Monday, March 21**  
**11:15am–2:15pm**  
*Convention Center, Ballroom A3*

**Physics Community Outreach: Small wonders: Bringing Nano to the Public Through Museum Partnership**

**Session G1**  
**Monday, March 21**  
**7:45pm–9:30pm**  
*Convention Center, Ballroom C1*

Sponsored by DCMP  
Chair: Barbara Jones, IBM Almaden Research Center  
Speaker: Vincent Crespi, Department of Physics, Penn State University  
“Small Wonders: Bringing Nano to the Public Through Museum Partnership” will describe how partnerships between academia and science museums can convey complex topics in rapid, accessible forms to a very young audience. In particular, we will discuss a partnership between the Penn State MRSEC and The Franklin Institute.

**Kavli Foundation Special Symposium:**  
**Nobelist Perspectives on 100 Years of Superconductivity**

**Session J3**  
**Tuesday, March 22**  
**11:15am–2:15pm**  
*Convention Center, Ballroom A3*

Speakers: Anthony Leggett, K.A. Mueller, Ivar Giaever, Frank Wolezek, Wolfgang Ketterle

**Kavli Foundation Special Symposium:**  
**Superconductivity Centennial: Future Research Developments**

**Session Q3**  
**Wednesday, March 23**  
**11:15am–2:15pm**  
*Convention Center, Ballroom A2*

**Nobel Prize Session**

**Session U1**  
**Wednesday, March 23**  
**5:45pm–7:00pm**  
*Convention Center, Ballroom A1*

Chair: Warren Pickett  
2010 Nobel Laureate in Physics: Konstantin Novoselov, University of Manchester  
*Graphene: Materials in the Flatland*
Contact Congress

Convention Center, Near Registration, Lobby D

Sponsors:
Division of Condensed Matter Physics (DCMP)
Division of Materials Physics (DMP)

Contact Congress Hours
Sunday, March 20.................................3:00pm–6:00pm
Monday, March 21 .................................9:00am–6:00pm
Tuesday, March 22 .................................9:00am–6:00pm
Wednesday, March 23 ..............................9:00am–6:00pm
Thursday, March 24 .................................9:00am–1:00pm

Q: What’s the best-spent minute at the March Meeting?
A: Stopping by the Contact Congress booth to sign your name to letters to your Congressional delegation on the importance of federal funding for basic research. It takes only a minute. By doing so, you are making your voice heard in Washington and helping to influence the funding levels for physics research and education. To amplify the impact, the APS Washington Office follows up each letter with a call or visit to congressional staff.

Be a Science Advocate
The strongest and most persuasive advocates on Capitol Hill come from a Senator or Representative’s constituents. That means you! If you live in the United States, you are qualified to write to your members of Congress.

Contact Congress is overseen by the APS Washington Office. If you have any questions about what is happening in D.C., just stop by the Contact Congress desk to ask the experts.

Gallery of Non-Linear Images
Sponsored by the APS Topical group on Statistical and Non-linear Physics (GSNP)
Monday, Tuesday, Wednesday
During Exhibit Hours
Convention Center, Exhibit Hall D

APS Prizes & Awards Ceremonial Session
Session E1
Monday, March 21
5:45 pm–6:45 pm
Convention Center, Ballroom C1

All attendees are welcome!

Prizes and awards will be bestowed on several individuals for outstanding contributions to physics. Please plan on attending the Awards Program and join us in honoring these individuals. See page 31 for complete information on prizes and awards.

Welcome Reception
Monday, March 21
6:45pm–8:00pm
Convention Center, Exhibit Hall A

All attendees are invited.

APS Journals Booth
Monday–Wednesday
March 21–23
Dallas Convention Center
Exhibit Hall D–Booth #300

Talk to the APS Journal Editors
Editors of the APS journals and members of the technical and marketing staff will be on hand at the APS Journals Booth located in the exhibit hall to answer questions on all matters pertaining to the APS journals. Access to the online journals will be available. Your ideas, concerns, and suggestions are welcome.

We look forward to interacting with you on any journal matters, and to the opportunity to thank you in person for your contributions as an author or a reviewer. We are always pleased to receive feedback on our journals, to hear your ideas and concerns, and to learn more from our community about all aspects of physics research. We hope you will be able to drop by! The APS Booth will be open throughout the Exhibit Show for information on the APS and its journals.

Wine and Cheese Receptions
Monday and Tuesday
4:00pm–5:00pm
Convention Center, Exhibit Hall D
**APS MEETINGS / EVENTS**
(In chronological order)

**Estate Planning Seminar**
Tuesday, March 22
1:00pm–2:30pm
Convention Center, Room A133-134

**APS Editorial Q & A**
Session L12
Tuesday, March 22
2:30pm–4:00pm
Convention Center, D223-224

The APS editors look forward to a productive exchange!

**The Federal Deficit: What it Means for Your Science Funding**
Session I
Tuesday, March 22
2:30pm–4:00pm
Convention Center, D222

Session II
Wednesday, March 23
8:00pm–9:00pm
Hyatt Hotel, Reunion E

**Meet the Editors of AIP and APS Reception**
Tuesday, March 22
4:00pm–6:00pm
Convention Center, Lobby E

The Editors of AIP and APS cordially invite you to join them for conversation and refreshments. Your questions, criticisms, compliments, and suggestions about the journals are welcome. We hope you will be able to join us.

**Services and Publications of the American Institute of Physics:**
AIP Advances
AIP UniPHY
Applied Physics Letters
APL: Organic Electronics & Photonics
Biotechnology
Chaos: An Interdisciplinary Journal of Nonlinear Science
Computing in Science & Engineering
Journal of Applied Physics
JAP: Applied Physics Reviews
The Journal of Chemical Physics
JCP: BioChemical Physics
Journal of Mathematical Physics
Journal of Physical & Chemical Reference Data
Journal of Renewable & Sustainable Energy
Low Temperature Physics
Physics of Fluids
Physics of Plasmas
Physics Today
Review of Scientific Instruments

**Services and Publications of The American Physical Society:**
PROLA
Physical Review A
Physical Review B
Physical Review E
Physical Review Focus
Physical Review Letters
Physical Review Special Topics–Accelerators and Beams
Physical Review Special Topics–Physics Education Research
Physical Review X
Physics
Reviews of Modern Physics

**Trends in the APS Publication Physics**
Session U55
Wednesday, March 23
7:30pm–9:30pm
Hyatt Hotel, Reunion A-D

Trends in the APS publication Physics is a journal of concise surveys of a particular area that also anticipate developments in that field.

Come to this general-interest session to hear three speakers present talks on emerging topics in condensed matter physics: Joel Moore on topological insulators, Daniel Loss on quantum information in solid state systems, and Michael Fuhrer on graphene. Pizza and beer will be served.

**Physics Sing-along/listen-along**
Wednesday, March 23
9:00pm–10:00pm
Hyatt Hotel, Bryan Beeman A-B
**Mentor/Student Welcome Reception**

*Monday, March 21*
*7:00pm-9:00pm*
*Hyatt Hotel, Reunion F*

Undergraduate students and their mentors are invited to enjoy some wonderful refreshments and learn about career opportunities for students of physics. Join forces in a special contest for the chance to win some great prizes. For more information contact Crystal Bailey (bailey@aps.org).

**SPS Undergraduate Research Presentations**

Undergraduate students present their research in special Society of Physics Students (SPS) sessions. Winning presenters will receive recognition and book prizes at the Student Awards Reception, below.

*Monday, March 21*
Undergraduate Research I–Session B10; 11:15am
Undergraduate Research II–Session D10; 2:30pm

*Tuesday, March 22*
Undergraduate Research III–Session H11; 8:00am
Poster Session–Session K1; 2:00pm

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**Companion’s Welcome Breakfast**

*Monday, March 21*
*9:00am–10:30am*
*Hyatt Hotel, Pegasus B*

**Cost: Free to companions and families of attendees only.**
Companions of the attendees of the March Meeting are invited to a complimentary breakfast to meet other companions and learn about the city of Dallas. Presentations will be made by a representative of the Dallas Convention and Visitors Bureau. At the breakfast you will receive information about the sites and attractions in the city. The breakfast is restricted to companions and families only - registered meeting attendees not admitted.

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**Future of Physics Days**

**Sponsored by:**

![APS Physics](image1.png)

![CUR](image2.png)

![SPS](image3.png)

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**Graduate School Fair**

*Tuesday, March 22*
*1:30pm–3:30pm*
*Convention Center, Exhibit Hall D*

Meet with representatives from various physics departments in a casual, low-key environment and learn more about graduate programs and research opportunities while enjoying coffee, drinks, and light snacks.

**Student Awards Reception and Career Panel**

*Tuesday, March 22*
*5:30pm–7:00pm*
*Convention Center, Exhibit Hall A*

**Reception**
Graduate and Undergraduate students may mingle with working physicists at this special student reception. Winning presenters from SPS oral and poster sessions will be given book awards.

**Career Panel**
The reception will also feature a Career Panel of physicists followed by a round table discussion. Students will have a chance to speak with working physicists to learn about their careers, and will also get a chance to network and mingle. Light refreshments will be served.

**DCMP/DMP/DCOMP/DCP New Fellows and Award Winners Reception**

*Tuesday, March 22*
*5:30pm–7:00pm*
*Hyatt Hotel, Reunion G-H*

**Forum on International Physics (FIP) Reception**

*Tuesday, March 22*
*6:00pm–8:00pm*
*Hyatt Hotel, Cotton Bowl*

Please join us as we honor the FIP/APS Fellows! Co-sponsors will also be giving out awards.

The FIP reception is a wonderful opportunity to interact with speakers, officers of the American Physical Society, members of the co-sponsoring organizations, and your fellow FIP members!


**APS EVENTS FOR SPECIAL GROUPS**

(*In chronological order*)

**Reception Co-Sponsors:**
- APS Office of International Affairs
- Overseas Chinese Physics Association (OCPA)
- Association of Korean Physicists in America (AKPA)
- American Chapter of the Indian Physics Association (ACIPA)
- Iranian-American Physicists Group Network (IrAP)

**COM/CSWP Networking Reception**

*Tuesday, March 22*

7:30pm–9:30pm

*Hyatt Hotel, Bryan Beeman B*

Come learn about the work of the Committee on Minorities in Physics and the Committee on the Status of Women in Physics, network with colleagues, and unwind after a long day of sessions.

**Water Cooler Discussion: APS Minority Bridge Program**

*Tuesday, March 22*

12:00noon–1:00pm

*Convention Center, D166*

**High School Physics Teachers Day**

*Wednesday, March 23*

8:00am–3:00pm

*Hyatt Hotel, Pegasus Ballroom*

In conjunction with the March Meeting 2011, the APS Department of Education and Diversity is sponsoring a High School Physics Teachers’ Day for teachers in the Dallas area.

The program includes:

- Three sessions of hands-on workshops presenting innovative, classroom-ready activities
- Video on LIGO, plus Q & A via Skype with head of LIGO Hanford
- Breakfast—a chance to network with fellow teachers
- Lunch with a physicist

If you are a physicist attending the March Meeting and would like to join the teachers for lunch, email Ed Lee (lee@aps.org).

**Tutorial for Authors and Referees**

*Session P13*

*Wednesday, March 23*

8:00am–9:30am

*Convention Center, D225-226*

Editors from Physical Review Letters and Physical Review will provide information and tips for our less experienced referees and authors. This session is aimed at anyone looking to submit to or review for any of the APS journals, as well as anyone who would like to learn more about the authoring and refereeing processes.

Topics for discussion will include:

- Advice on how to write good manuscripts
- Similarities and differences in writing referee reports for PRL and PR
- Ways in which authors, referees, and editors can work together productively

Following a short presentation from the editors, there will be a moderated discussion. Refreshments will be served.

**Graduate Student Lunch with the Experts**

*Wednesday, March 23*

1:00pm–2:30pm

*Convention Center, Exhibit Hall A*

Registration

Register on-site in Dallas.

Sign-up will open Monday, March 21 at 1:00 p.m., near the APS Registration Desk. Registration will be on a first-come, first-served basis. **Attendance is limited to eight students per topic.**

Cost: Free

Graduate students may sign up to enjoy a complimentary box-lunch while participating in an informal and stimulating discussion with an expert on a topic of interest to them.

**Graduate Student Lunch Topics**

**DCMP Sponsored Topics**

1. **Theory of Nanoscale Magnetism**
   - Barbara Jones, IBM Almaden Research Center

2. **Low Temperature Physics**
   - Bill Halperin, Northwestern University
APS EVENTS FOR SPECIAL GROUPS
(In chronological order)

3. Bridging Soft Matter and Biological Physics
   Eric Dufresne, Yale University
   eric.dufresne@yale.edu

4. Topological Insulators
   Joel Moore, University of California, Berkeley

DMP Sponsored Topics
5. Spectroscopies of Correlated Electrons
   Daniel Dessau, University of Colorado

6. Materials Theory
   Nicola Spaldin, ETH Zurich

7. Multifunctional Electronic Materials
   Chris Palmstrøm, University of California, Santa Barbara

8. Neutron Scattering Studies of Magnetism and Superconductivity
   Jeff Lynn, NIST

9. The Search for New High-temperature Superconductors
   Laura Greene, University of Illinois

DPOlY Sponsored Topic
10. Polymer Physics
    Mesfin Tsige, University of Akron

DCOMP Sponsored Topics
11. Cold Atoms and Hot Superconductors
    Richard Scalettar, University of California, Davis

12. Fermiology and Phase Transitions
    Michelle Johannes, Naval Research Laboratory

DCP Sponsored Topic
13. Quantum Effects in Biology
    Greg Scholes, University of Toronto

FEd Sponsored Topic
14. The Transition from Graduate Student to Faculty Member: Lessons Learned in Teaching and Research
    Karen Daniels, North Carolina State University

GMAG Sponsored Topics
15. Synchrotron-based Studies of Magnetic Materials and Complex Oxides
    Dario Alejandro Arena, Brookhaven National Laboratory

16. Complex Oxide Interfaces
    John W. Freeland, Argonne National Laboratory

17. Magnetic Recording Technologies
    Eric Fullerton, University of California, San Diego

18. Life as a Physicist in an Industiral Research Lab: Pros and Cons from My Perspective
    Olav Hellwig, Hitachi Global Storage Technologies

GQI Sponsored Topics
19. Quantum-Information and Quantum-Foundations Experiments: Two Sides of a Coin
    Anton Zeilinger, University of Vienna

20. What Information Says about Quantum Physics and What Quantum Physics Says about Information
    Benjamin Schumacher, Kenyon College

GSNP Sponsored Topic
21. Soft Jammed Materials
    Eric Weeks, Emory University

CSWP/FIAp Networking Breakfast for Women in Industry
Sponsored by the Committee on the Status of Women in Physics (CSWP) and the Forum on Industrial and Applied Physics (FIAp)
Thursday, March 24
7:30am–9:30am
Hyatt Hotel, Bryan Beeman

APS BUSINESS MEETINGS

Tuesday, March 22–5:45pm
Convention Center

GSNP Room: D227
GMAG Room: D171
FIAP Room: D168
GIMS Room: D161
GQI Room: C155
GERA Room: C145
DBP Room: A130/131
DPOlY Room: A302/303
### APS EVENTS FOR SPECIAL GROUPS

*(In chronological order)*

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Time</th>
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<tbody>
<tr>
<td><strong>Quantum Research Collaboration</strong></td>
<td>Sunday, March 20</td>
<td>8:00am–12:00pm</td>
<td>Hyatt Hotel, Reverchon A</td>
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<td><strong>PIRE-TERANO</strong></td>
<td>Sunday, March 20</td>
<td>8:00am–6:00pm</td>
<td>Hyatt Hotel, Shawnee Trail</td>
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<td><strong>Greene MURI Review</strong></td>
<td>Sunday, March 20</td>
<td>9:00am–1:00pm</td>
<td>Hyatt Hotel, Sanger B</td>
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<td><strong>Annual Review Meeting</strong></td>
<td>Sunday, March 20</td>
<td>9:00am–5:00pm</td>
<td>Hyatt Hotel, Sanger A</td>
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<td><strong>DOE Condensed Matter</strong></td>
<td>Sunday, March 20</td>
<td>7:30pm–9:30pm</td>
<td>Hyatt Hotel, Sanger B</td>
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<td><strong>Alumni Reunions</strong></td>
<td>Tuesday, March 22</td>
<td>6:00pm–8:00pm</td>
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<td>• IBM, Sanger A</td>
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<td><strong>JCPM Meeting</strong></td>
<td>Monday, March 21</td>
<td>6:45pm–8:30pm</td>
<td>Hyatt Hotel, Cockrell</td>
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<tr>
<td><strong>Research Corporation Reception</strong></td>
<td>Tuesday, March 22</td>
<td>5:30pm–7:30pm</td>
<td>Hyatt Hotel, Pegasus B</td>
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<tr>
<td><strong>Oxford Instruments Socialize with Science Presentation</strong></td>
<td>Tuesday, March 22</td>
<td>5:30pm–8:30pm</td>
<td>Hyatt Hotel, Pegasus A</td>
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<tr>
<td><strong>American Chapter of the Indian Physics Association</strong></td>
<td>Tuesday, March 22</td>
<td>7:00pm–10:00pm</td>
<td>Hyatt Hotel, Cumberland GH</td>
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<tr>
<td><strong>RSI Editorial Board Meeting</strong></td>
<td>Wednesday, March 23</td>
<td>12:00n–2:00pm</td>
<td>Hyatt Hotel, Bryan Beeman</td>
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#### SATELLITE MEETINGS

*(events sponsored by non-APS groups)*

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<tr>
<th>Event</th>
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<tr>
<td><strong>DCMP</strong></td>
<td>Tuesday, March 22</td>
<td>7:00pm–9:00pm</td>
<td>Hyatt Hotel, Cockrell</td>
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<td><strong>DMP</strong></td>
<td>Tuesday, March 22</td>
<td>7:00pm–9:00pm</td>
<td>Hyatt Hotel, Cockrell</td>
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<td><strong>DCP</strong></td>
<td>Tuesday, March 22</td>
<td>7:00pm–9:00pm</td>
<td>Hyatt Hotel, Cockrell</td>
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<td><strong>DCOMP</strong></td>
<td>Wednesday, March 23</td>
<td>1:00pm–3:00pm</td>
<td>Hyatt Hotel, Pegasus A</td>
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<tr>
<td><strong>Satellite Meetings</strong> (events sponsored by non-APS groups)</td>
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<td><strong>Alumni Reunions</strong></td>
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<td><strong>DAMOP</strong></td>
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<td>A45......Focus Session: Exploring Quantum Phases in Cold Atom Systems</td>
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<td>J45......Focus Session: Non-equilibrium Physics with Cold Quantum Gases</td>
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<td><strong>DBP</strong></td>
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<td>A39.....Focus Session: Energy Future: Biological and Biometric Systems</td>
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<td>L40 .....Focus Session: Noisy Dynamics as Survival Strategies and Nanopores</td>
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<td>H39 ....Focus Session: Physics of Cancer</td>
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<td><strong>DBP/DPOLY/DCP</strong></td>
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<td>B39.....Focus Session: Single Molecule Biophysics II: Novel Single Molecule Approaches to Biology</td>
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<td>L39 .....Focus Session: Single Molecule Biophysics III: Novel Single Molecule Approaches to Biology</td>
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<td><strong>DCOMP</strong></td>
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<td>L24 .....Focus Session: Quantum Transport Simulations and Computational Electronics -- GNRs and QDs</td>
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<td>X24 .....Focus Session: Quantum Transport Simulations and Computational Electronics -- Molecular Junctions</td>
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<td>D24 ....Focus Session: Quantum Transport Simulations and Computational Electronics -- Nanostructures</td>
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<td><strong>DCOMP/DFD</strong></td>
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<td>D26 ....Focus Session: Iron Based Superconductors -- Electronic Structure</td>
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<td>B23 .....Focus Session: Iron Based Superconductors -- Electronic Structure, Theory and Spectroscopy</td>
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<td>J28 .....Focus Session: Computational Materials Design - Data-Driven</td>
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<td>L28 .....Focus Session: Computational Materials Design - Property Optimization</td>
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<td>B24 .....Focus Session: Multiscale Modeling - Methodology and applications</td>
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<td>Q24 .....Focus Session: Multiscale Modeling: Heterogeneous Systems and Interfaces</td>
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<td>J24 .....Focus Session: Multiscale Modeling: Structural Materials</td>
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<td><strong>DCOMP/FEd</strong></td>
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<td>V21 .....Focus Session: Teaching Computational Physics to Classroom and Research Students</td>
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<td>W41....Focus Session: Electronic Structure and Applications to Energy Conversion I</td>
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<td>X41 .....Focus Session: Electronic Structure and Applications to Energy Conversion II</td>
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<td>P41 .....Focus Session: Fundamental Issues in Interfacial Charge Transport for Energy Applications I</td>
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<td>Q41 ....Focus Session: Fundamental Issues in Interfacial Charge Transport for Energy Applications II</td>
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<td>Y41 .....Focus Session: Imaging and Interfaces in Energy Science</td>
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<td>T41 .....Focus Session: The Role of Water in Energy Production and Utilization I</td>
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<td>V41 .....Focus Session: The Role of Water in Energy Production and Utilization II</td>
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<td>A41 .....Focus Session: Ultrafast Dynamics and Imaging I</td>
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<td>J41 ......Focus Session: Ultrafast Dynamics and Imaging II</td>
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<td>X38 .....Focus Session: Non-Equilibrium Insights into Single Molecules and Cell Function I</td>
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<td>Y38 .....Focus Session: Non-Equilibrium Insights into Single Molecules and Cell Function II</td>
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<td>H38 ....Focus Session: Quantum Coherence in Biology I</td>
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<td>L38 .....Focus Session: Quantum Coherence in Biology II</td>
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<td>P38 .....Focus Session: Quantum Coherence in Biology III</td>
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<td>T38 .....Focus Session: Quantum Coherence in Biology IV</td>
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<td>T42 .....Focus Session: The Physics of Evolution I</td>
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<td>V38 .....Focus Session: The Physics of Evolution II</td>
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<td>B13 .....Focus Session: Polymer Colloids: Structure, Function, and Dynamics II</td>
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<td><strong>DFD/DPOLY</strong></td>
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<td>A13 .....Focus Session: Polymer Colloids: Structure, Function, and Dynamics I</td>
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</table>
FOCUS SESSIONS

DMP

V28 .....Focus Session: Carbon Nanotubes and Related Materials: Devices III
D23 ....Focus Session: Search for New Superconductors I: Exploring Emergent Phases
L23 .....Focus Session: Search for New Superconductors II: Towards Theoretical Design
T23 .....Focus Session: Search for New Superconductors III: Reduced Dimensionality
H34 ....Focus Session: Atomic, Molecular, and Memristive Junctions
H28 ....Focus Session: Carbon Nanotubes and Related Materials: Devices I
Q28 ....Focus Session: Carbon Nanotubes and Related Materials: Devices II
A28 .....Focus Session: Carbon Nanotubes and Related Materials: Fundamentals and Applications
B28 .....Focus Session: Carbon Nanotubes and Related Materials: Growth, Sorting and Properties
B12 .....Focus Session: Dopants and Defects in Semiconductors: Compound Semiconductors I
D12 ....Focus Session: Dopants and Defects in Semiconductors: Compound Semiconductors II
Q12 ....Focus Session: Dopants and Defects in Semiconductors: Conducting Oxides
P12 .....Focus Session: Dopants and Defects in Semiconductors: Hyper Doping
H12 .....Focus Session: Dopants and Defects in Semiconductors: Silicon
J32......Focus Session: Electron, Ion, and Exciton Transport in Nanostructures: Nanowires
J36......Focus Session: Graphene Growth, Characterization and Devices: SiC and Metal Substrates
B37 .....Focus Session: Graphene Growth, Characterization, and Devices: Devices and Contacts
D37 ....Focus Session: Graphene Growth, Characterization, and Devices: Photo and Electric Field Induced Devices
Q36 ....Focus Session: Graphene Structure, Dopants, and Defects: Nanoparticles
T37 .....Focus Session: Graphene Structure, Dopants, and Defects: Nanoribbons
D37 ....Focus Session: Graphene Structure, Dopants, and Defects: Strain Engineering I
P37 .....Focus Session: Graphene Structure, Dopants, and Defects: Strain Engineering II
H37 ....Focus Session: Graphene Structure, Dopants, and Defects: Transport I
Q37 ....Focus Session: Graphene Structure, Dopants, and Defects: Transport II
A37.....Focus Session: Graphene: Growth, Characterization and Devices: Theory and Transport
P36 .....Focus Session: Graphene: Growth, Characterization, and Devices: Electronic Structure
W37 ....Focus Session: Graphene: Growth, Characterization, and Devices: Quantum Hall Effect
P10 .....Focus Session: Growth, Structure, Dynamics, and Function of Nanostructured Surfaces and Interfaces -- Metals
X10 .....Focus Session: Growth, Structure, Dynamics, and Function of Nanostructured Surfaces and Interfaces -- Organic Molecules
T10 .....Focus Session: Growth, Structure, Dynamics, and Function of Nanostructured Surfaces and Interfaces -- Oxides
V10 .....Focus Session: Growth, Structure, Dynamics, and Function of Nanostructured Surfaces and Interfaces -- Semiconductors
L34 .....Focus Session: Interfaces in Complex Oxides - Heterointerfaces
A34 .....Focus Session: Interfaces in Complex Oxides - LaAlO3/SrTiO3 Transport
J34.....Focus Session: Interfaces in Complex Oxides - Microscopy and Local Structure
D34 ....Focus Session: Interfaces in Complex Oxides - Photo and Electric Field Induced Devices
Q34 .....Focus Session: Interfaces in Complex Oxides - Polar Interfaces
P34 .....Focus Session: Interfaces in Complex Oxides - Transport and Optics
L32 .....Focus Session: Nano-Optics, Semiconductor and Metal Nanostructures
FOCUS SESSIONS

A32 ..... Focus Session: Optical Properties of Nanostructures and Metamaterials I
B32 ..... Focus Session: Optical Properties of Nanostructures and Metamaterials II
D32 ..... Focus Session: Optical Properties of Nanostructures and Metamaterials III
Q32 ..... Focus Session: Optical Properties of Semiconductor and Metal Nanostructures
H32 ..... Focus Session: Photonic Crystals, Metamaterials and Other Optical Systems
D31 ..... Focus Session: van der Waals Bonding in Advanced Materials: Applications to Advanced and Functional Materials
B31 ..... Focus Session: van der Waals Bonding in Advanced Materials: Applications to Systems and Behaviors
A31 ..... Focus Session: van der Waals Bonding in Advanced Materials: Fundamentals and Simple Systems
W34 ..... Focus Session: Optical Properties of Nanocrystals

DMP/DCOMP

H26 ..... Focus Session: Iron Based Superconductors -- Anisotropic Spin Dynamics
L26 ..... Focus Session: Iron Based Superconductors -- ARPES
V26 ..... Focus Session: Iron Based Superconductors -- Doping Studies
Z26 ..... Focus Session: Iron Based Superconductors -- Electronic Anisotropy
X26 ..... Focus Session: Iron Based Superconductors -- Fe(Se-Te)
Q23 ..... Focus Session: Iron Based Superconductors -- Fermi Topology
X23 ..... Focus Session: Iron Based Superconductors -- Gap Symmetry
T26 ..... Focus Session: Iron Based Superconductors -- Magnetic Properties & Phase Diagrams
Q26 ..... Focus Session: Iron Based Superconductors -- Optics, Heat Capacity, Thermopower
Y26 ..... Focus Session: Iron Based Superconductors -- Orbital Order
A26 ..... Focus Session: Iron Based Superconductors -- Theory
W26 ..... Focus Session: Iron Based Superconductors -- Tuning Magnetism and Superconductivity
J26 ..... Focus Session: Iron Based Superconductors -- Vortices & High Fields
P33 ..... Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: BiFeO3

B33 ..... Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Electronic Conduction and Defects
Q33 ..... Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Interfaces and Optical Properties
L33 ..... Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Lattice Dynamics, Polarons, and Structure
D33 ..... Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Multiferroics
H33 ..... Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Multiferroics & Magnetoelectrics I
J33 ..... Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Multiferroics & Magnetoelectrics II
T33 ..... Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Pb-based and novel materials
A33 ..... Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Piezoelectrics, Oxides on Semiconductors, and Applications
V33 ..... Focus Session: Dielectric, Ferroelectric, and Piezoelectric Oxides: Vortices and Novel Mechanisms
B26 ..... Focus Session: Iron Based Superconductors -- Growth
P26 ..... Focus Session: Iron Based Superconductors -- Spin Dynamics

DMP/DPOLY

W38 ..... Focus Session: Organic Electronics and Photonics -- Charge transport
Y44 ..... Focus Session: Organic Electronics and Photonics -- Exciton and charge separation physics
Z44 ..... Focus Session: Organic Electronics and Photonics -- New Materials and Applications
P42 ..... Focus Session: Organic Electronics and Photonics -- Organic Photovoltaic Devices
V44 ..... Focus Session: Organic Electronics and Photonics -- Small molecule semiconductors and molecular electronics

DMP/DPOLY/GERA

Q38 ..... Focus Session: Organic Electronics and Photonics -- Morphology in polymer-based solar cells
L43 ..... Focus Session: Polymers for Energy Storage and Conversion -- Emerging Applications
B43 ..... Focus Session: Polymers for Energy Storage and Conversion -- Nanoscale Structure in Polymer-based Photovoltaics
H42 ..... Focus Session: Polymers for Energy Storage and Conversion -- Physics of Ion Conductivity in Polymers
FOCUS SESSIONS

J41......Focus Session: Polymers for Energy Storage and Conversion -- Structure in Organic Semiconductor Blends

DMP/FIAP/GERA
Y20.....Focus Session: Thermoelectric Materials: Chalcogenides and 1D/2D Systems
X20.....Focus Session: Thermoelectric Materials: Theory

DMP/GERA
A36.....Focus Session: Scalable Technologies for Terawatt Photovoltaics

DMP/GERA/FIAP
W20....Focus Session: Thermoelectric Materials: Clathrates and Oxides
T20.....Focus Session: Thermoelectric Materials: LAST/TAGS, Heusler, and Silicides
L20.....Focus Session: Thermoelectric Materials: Skutterudites, Novel and Nanostructured Materials

DMP/GIMS/DCP
J21......Focus Session: Imaging and Modifying Materials at the Limits of Space and Time Resolution I
L21 .....Focus Session: Imaging and Modifying Materials at the Limits of Space and Time Resolution II

DMP/GMAG
P17 .....Focus Session: Bulk Properties of Complex Oxides - 3d Oxides
V17 .....Focus Session: Bulk Properties of Complex Oxides - 5d Oxides
D17 ....Focus Session: Bulk Properties of Complex Oxides - Cobaltites
H17 ....Focus Session: Bulk Properties of Complex Oxides - Ferrites
J17 .....Focus Session: Bulk Properties of Complex Oxides - Ferrites + Vanadates
A17 .....Focus Session: Bulk Properties of Complex Oxides - Manganites I
W16....Focus Session: Bulk Properties of Complex Oxides - Other
Q17 ....Focus Session: Bulk Properties of Complex Oxides - Ruthenates
B34 .....Focus Session: Interfaces in Complex Oxides - Spectroscopy and Growth
A16 .....Focus Session: Magnetic Nanostructures I
B16 .....Focus Session: Magnetic Nanostructures II

J16......Focus Session: Magnetic Nanostructures III
V16......Focus Session: Magnetic Nanostructures, Exchange Coupled System
T16 .....Focus Session: Magnetic Nanostructures, Materials & Effects
P16 .....Focus Session: Magnetic Nanostructures, Vortices & Domain Walls
L16 .....Focus Session: Magnetic Nanostructures: Probing Using Advanced Methods
Q18 ....Focus Session: Magnetic Oxide Thin Films - Multiferroic Thin Films

DMP/GMAG/FIAP
H15 ....Focus Session: Spins in Semiconductors - Ferromagnetic Semiconductors
T15 .....Focus Session: Spins in Semiconductors - III-V Magnetic Semiconductors
X15 .....Focus Session: Spins in Semiconductors - Manipulation of Dopant Spins
P15 .....Focus Session: Spins in Semiconductors - Quantum Computing with Defects
Q15 ....Focus Session: Spins in Semiconductors - Quantum Dots and Nuclear Spins
B15 .....Focus Session: Spins in Semiconductors - Spin Currents I
J15 .....Focus Session: Spins in Semiconductors - Spin Currents II
A15 .....Focus Session: Spins in Semiconductors - Spin Dynamics
L15 .....Focus Session: Spins in Semiconductors - Spin Torque and Spin Injection
W15....Focus Session: Spins in Semiconductors - Spin-Orbit Effects and Confinement

DMP/GSCCM/DCOMP
H31 ....Focus Session: Materials at High Pressure I: Molecular and Simple Materials
J31 ......Focus Session: Materials at High Pressure II: Elements
L31 .....Focus Session: Materials at High Pressure III: Electronic Transitions
P31 .....Focus Session: Materials at High Pressure IV: Geophysical Materials and Magnetic Transitions
Q31 ....Focus Session: Materials at High Pressure V: Structure Prediction and Complex Materials
H14 .....Focus Session: Friction, Fracture and Deformation Across Length Scales I: Sliding Friction and Asperities
P14 .....Focus Session: Friction, Fracture and Deformation Across Length Scales II: Plasticity and Rupture
**FOCUS SESSIONS**

**DPOLY**
- A41.....Focus Session: Active Biopolymers and Biomaterials
- P44.....Focus Session: Assembly, Structure, & Instabilities in Polymer Films, Network Films, & Interfaces I
- X43.....Focus Session: Assembly, Structure, & Instabilities in Polymer Films, Network Films, & Interfaces II
- A42.....Focus Session: Directed Assembly of Hybrid Nanomaterials
- Q44 ....Focus Session: Dynamics of Polymers-Phenomena due to Confinement
- W44....Focus Session: Dynamics of Polymers-Phenomena due to Confinement - Diffusion, Particles, & Pores
- Y42 .....Focus Session: Dynamics of Polymers--Phenomena due to Confinement--Theory, Wrinkling, and Glass Transitions
- X45.....Focus Session: Nanocomposite Physics I-Dispersions and Physical Properties
- Y40.....Focus Session: Nanocomposite Physics II-Polymer Dynamics
- W42....Focus Session: Polymer Brushes
- A43.....Focus Session: Thin Film Block Copolymers I
- H43 ....Focus Session: Thin Film Block Copolymers II
- P43 .....Focus Session: Thin Film Block Copolymers III

**DPOLY/DBP**
- B41 .....Focus Session: Supramolecular Self-Assembly--Controlling Network and Gel Formation I
- V42 .....Focus Session: Supramolecular Self-Assembly--Controlling Network and Gel Formation II
- Q43....Focus Session: Translocation through Nanopores I
- V43 .....Focus Session: Translocation Through Nanopores II

**DPOLY/DFD**
- J44 .....Focus Session: Kinetic Control of Solution Assemblies
- X44 .....Focus Session: Polymer Colloids-Structure, Function, and Dynamics II

**Fed**
- A14.....Focus Session: New Ways of Communicating Physics

**FIAP/DMP**
- W32....Focus Session: Frontiers in Computational Thermodynamics of Materials I
- X32.....Focus Session: Frontiers in Computational Thermodynamics of Materials II

**FIAP/DMP/GERA/DCOMP**
- A20.....Focus Session: Physics of Energy Storage Materials I -- Cathodes and Electrolytes
- B20.....Focus Session: Physics of Energy Storage Materials II -- Anodes and Capacitors
- H20 ....Focus Session: Physics of Energy Storage Materials III -- Hydrogen Storage Adsorbents
- P20.....Focus Session: Physics of Energy Storage Materials IV -- Complex Hydrides and Methane
- V20 .....Focus Session: Physics of Energy Storage Materials V -- Thermal Storage and Conventional Hydrides

**GERA/DMP**
- A12.....Focus Session: Electricity-to-Light Conversion: Solid State Lighting I
- J12 ......Focus Session: Electricity-to-Light Conversion: Solid State Lighting II

**GIMS**
- A21 .....Focus Session: Advances in Scanned Probe Microscopy I -- Novel Tip and Material Control
- H21 ....Focus Session: Advances in Scanned Probe Microscopy II -- High Frequencies and Optical Techniques
- P21 .....Focus Session: Advances in Scanned Probe Microscopy III - Novel SPM of Spin, Force & Conductance
- D21 ....Focus Session: Novel Instrumentation & Measurements for Biomedical Research
- X21 .....Focus Session: Novel X-Ray Instrumentation and Measurement Techniques

**GMAG**
- P19 .....Focus Session: Spin Transport & Magnetization Dynamics in Metals VI
- V19 .....Focus Session: Spin Transport & Magnetization Dynamics in Metals VIII

**GMAG/DAMOP**
- T45 .....Focus Session: Magnetic and Spin Ordering in Atomic and Optical Systems

**GMAG/DMP**
- B17 .....Focus Session: Bulk Properties of Complex Oxides - Manganites II
- L18 .....Focus Session: Low D/Frustrated Magnetism - 2D Lattices
- D18 .....Focus Session: Low D/Frustrated Magnetism - Kagome Lattices
FOCUS SESSIONS

J18.....Focus Session: Low D/Frustrated Magnetism - Molecular Magnets I
T18.....Focus Session: Low D/Frustrated Magnetism - Molecular Magnets II
Y18.....Focus Session: Low D/Frustrated Magnetism - More Frustrated Magnets
A18.....Focus Session: Low D/Frustrated Magnetism - Pyrochlore, et al.
B18.....Focus Session: Low D/Frustrated Magnetism - Quantum Magnetism
X18.....Focus Session: Low D/Frustrated Magnetism - Spin Chains & Ladders
V18.....Focus Session: Low D/Frustrated Magnetism - Spin Ice, et al.
P18.....Focus Session: Low D/Frustrated Magnetism - Triangular Lattices
W17....Focus Session: Magnetic Oxide Thin Films - Cobaltate and Ferrous Oxide Thin Films
L17 ....Focus Session: Magnetic Oxide Thin Films - Ferroic and Oxide Tunnel Junctions
T17 .....Focus Session: Magnetic Oxide Thin Films - Manganite Thin Films
X17 .....Focus Session: Magnetic Oxide Thin Films - Multiferroic Heterostructures and Europium Oxide
W19....Focus Session: Novel Magnetic Devices
A19.....Focus Session: Spin Transport & Magnetization Dynamics in Metals I
B19.....Focus Session: Spin Transport & Magnetization Dynamics in Metals II
H19 ....Focus Session: Spin Transport & Magnetization Dynamics in Metals III
L19 .....Focus Session: Spin Transport & Magnetization Dynamics in Metals V
T19 .....Focus Session: Spin Transport & Magnetization Dynamics in Metals VII
X16 .....Focus Session: Spins in Carbon-Based Materials -- Graphene, CNT, and C60
Y16 .....Focus Session: Spins in Carbon-Based Materials -- Magnetoresistance, Magneto-Electric Effect
H16 ....Focus Session: Spins in Carbon-Based Materials-- Spin Valves and Interfaces

GQI

H29 ....Focus Session: Quantum Information for Quantum Foundations - Axiomatics and Toy Models
Q29 ....Focus Session: Quantum Information for Quantum Foundations - Experiments and Tests
X29.....Focus Session: Quantum Information for Quantum Foundations - Information Measures, Entanglement, and Entropies
J29......Focus Session: Quantum Information for Quantum Foundations - Structures in Hilbert Space
A27.....Focus Session: Quantum Optics with Superconducting Circuits I
J27......Focus Session: Quantum Optics with Superconducting Circuits II
V27 .....Focus Session: Semiconductor Qubits - Dynamic Decoupling, Dephasing, and Relaxation
Y27 .....Focus Session: Semiconductor Qubits - In Search of Majorana
W27....Focus Session: Semiconductor Qubits - Optical Control, Donors, and Hybrid Systems
Q27 ....Focus Session: Semiconductor Qubits - Quantum Control
H27 ....Focus Session: Semiconductor Qubits - Silicon Spin Qubits
P27 .....Focus Session: Semiconductor Qubits - Spin Readout, Backaction, and Valley Physics in Silicon
Z27 .....Focus Session: Semiconductor Qubits - Theory and Experiment
P29 .....Focus Session: Superconducting Qubits
T29 .....Focus Session: Superconducting Qubits - Coherence and Materials I
Y29 .....Focus Session: Superconducting Qubits - Coherence and Materials II
Z29 .....Focus Session: Superconducting Qubits - Coherence and Materials III
D27 ....Focus Session: Superconducting Qubits - Gates and Algorithms
B27 .....Focus Session: Superconducting Qubits - Measurement

GMAG/DMP/FIAP

J19.....Focus Session: Spin Transport & Magnetization Dynamics in Metals IV
V15 .....Focus Session: Spins in Semiconductors - Spin Currents III
Y15 .....Focus Session: Spins in Semiconductors - Spin Currents IV

GSNP

X13.....Focus Session: Continuum Description of Particulate Media
Q14 ....Focus Session: Extreme Mechanics: Elasticity and Deformation I
T14 .....Focus Session: Extreme Mechanics: Elasticity and Deformation II
W14....Focus Session: Extreme Mechanics: Elasticity and Deformation III
FOCUS SESSIONS

X14.....Focus Session: Extreme Mechanics: Elasticity and Deformation IV
H13 ....Focus Session: Jamming Theory and Experiment I
J13......Focus Session: Jamming Theory and Experiment II
L13 .....Focus Session: Jamming Theory and Experiment III
J14......Focus Session: Physics of Active Materials
V14.....Focus Session: Statistical Mechanics of Complex Networks I
Y14.....Focus Session: Statistical Mechanics of Complex Networks II
Z14.....Focus Session: Statistical Mechanics of Complex Networks III
T13 .....Focus Session: Transport and Diffusion in Non-equilibrium Systems

GSNP/DBP
Q13 ....Focus Session: Stochastic Processes in Biology I
T13 .....Focus Session: Stochastic Processes in Biology II

GSNP/DMP
H32 ....Focus Session: Tribophysics — Fracture and Plasticity
### POSTER SESSIONS

**Dallas Convention Center • Hall D**

Poster sessions will be held on Monday, Tuesday and Wednesday.

Posters will be on display from 10:00 am to 5:00 pm on Monday and Tuesday, and from 10:00 am to 4:00 pm on Wednesday. Authors should be in attendance at the times listed below. Please remove your poster at the end of the session. APS is not responsible for poster materials that are left in the exhibit hall after the session is over. No A-V is allowed in posters sessions. A wine and cheese reception will be held in Hall D on Monday and Tuesday from 4:00 pm to 5:00 pm.

#### C1: POSTER SESSION I • MONDAY, MARCH 21

Authors in Attendance from 2:00pm to 5:00pm

<table>
<thead>
<tr>
<th>1 - 96</th>
<th>Polymers and Soft Matter I</th>
</tr>
</thead>
<tbody>
<tr>
<td>97 - 138</td>
<td>Semiconductors</td>
</tr>
<tr>
<td>139 - 192</td>
<td>Surfaces, Interfaces and Thin Films</td>
</tr>
<tr>
<td>193 - 212</td>
<td>Instrumentation and Measurements</td>
</tr>
<tr>
<td>213 - 242</td>
<td>Statistical and Nonlinear Physics</td>
</tr>
<tr>
<td>243 - 263</td>
<td>Complex Structured Materials I</td>
</tr>
<tr>
<td>264 - 283</td>
<td>Insulators and Dielectrics</td>
</tr>
<tr>
<td>284 - 290</td>
<td>General Physics I</td>
</tr>
</tbody>
</table>

#### K1: POSTER SESSION II • TUESDAY, MARCH 22

Authors in Attendance from 2:00pm to 5:00pm

| 1 - 3                       | Quantum Fluids and Solids                      |
| 4 - 35                      | Undergraduate Research/Society of Physics Students |
| 36 - 45                     | Physics Education                              |
| 46 - 69                     | General Theory (Theoretical Methods)           |
| 70 - 99                     | Energy Research and Applications               |
| 100 - 124                   | Atomic, Molecular and Optical (AMO) Physics    |
| 125 - 146                   | Quantum Information, Concepts and Computation  |
| 147 - 206                   | Magnetism (Experiment, Theory, Applications)   |
| 207 - 238                   | Superconductivity                              |
| 239 - 268                   | Complex Structured Materials II                |
| 269 - 282                   | Artificially Structured Materials              |
| 283 - 302                   | Phase Transitions and Strongly Correlated Systems |

#### S1: POSTER SESSION III • WEDNESDAY, MARCH 23

Authors in Attendance from 1:00pm to 4:00pm

| 1 - 89                      | Polymers and Soft Matter II                     |
| 90 - 116                    | Complex Structured Materials III                |
| 117 - 166                   | Biological Physics                              |
| 167 - 188                   | Chemical Physics                               |
| 189 - 228                   | Fluids and Soft Matter                         |
| 229 - 254                   | Applications                                   |
| 255 - 259                   | High Pressure Physics                          |
| 260 - 264                   | General Physics II                             |
| 265 - 298                   | Post-Deadline                                  |
PROGRAM FORMAT

PROGRAM TIME-BLOCKS
Contributed and invited sessions at APS general meetings are three hours in length — three sessions per day at 8:00am, 11:15am, and 2:30pm. The time-blocks are designated in alpha order beginning with time-block “A” on Monday at 8:00am, and ending with “Z” designating the 11:15 time-block on Friday.

SESSION CODES
The number following the alpha that designates the time-block represents the sequential numbering of the sessions within the time-block. Session A1 is one of several sessions taking place in parallel in the first time-block on Monday. The number following the decimal in the session code represents the sequence of the papers to be presented in that session. For example: B3 4 = Time-block B (Monday at 11:15am); Session 3 (of several) within that time-block; and the 4th paper to be presented in that session.

POSTER CODES
The poster sessions will take place on Monday, Tuesday, and Wednesday in the Exhibit Hall. A breakdown of the topics presented in each category is listed on page 28.

Monday poster session (2:00–5:00pm) = Sessions C1
Tuesday poster session (2:00–5:00pm) = Sessions K1
Wednesday poster session (1:00–4:00pm) = Sessions S1
Each poster presentation (board) within each poster session is numbered sequentially.

GUIDELINES FOR SPEAKERS
Oral Presentations
Please arrive at least 15 minutes prior to the scheduled time of your talk. Contributed papers are allocated 12 minutes each—10 minutes for presentation and 2 minutes for questions from the audience, unless otherwise specified. Invited papers are allocated 36 minutes—30 minutes for presentation and 6 minutes for questions from the audience.

Note: Occasionally (and unfortunately) the chair for a session may not appear, in which case we ask that the first presenter serve as chair of the session.

Poster Presentations
If you are presenting a poster, please be sure to have your poster up beginning at 10:00am on the day of your poster presentation to which you have been assigned, and taken down immediately at the end of the day. You must be on hand at the beginning of the poster session (see page 28 for times). APS will not be responsible for posters left up after the end of each poster session. No A-V is allowed in the poster sessions. Posters will be on display between the hours of 10:00am to 5:00pm Monday, Tuesday; 10:00am to 4:00pm, Wednesday. Consult the Poster Session Schedule for exact times and a breakdown of poster topics (page 28).

GUIDELINES FOR SESSION CHAIRS
• Prior to the session, check the Program Changes Board in the registration area to see if any papers in the session you are chairing have been withdrawn.
• Arrive at the meeting room about 15 minutes prior to the start of the session and familiarize yourself with the controls for lights, microphones, A-V equipment and the timer. Technicians will be on hand to assist. If you encounter problems, you should immediately alert the staff at APS Registration or Information Desk and/or the A-V specialist stationed near the meeting rooms.
• Start the session on time. Briefly introduce yourself, announce the first paper and author, and start the timer.
• Please adhere to the time schedule listed in the Bulletin, so that simultaneous sessions are as closely synchronized as possible. Many attendees move from session to session in order to hear specific papers. Note: any time used by the speaker and/or technicians to set up laptops for LCD (Powerpoint) presentations is deducted from the time allocated for the talk.
• The allotted time for contributed papers is 12 minutes; for invited papers — 36 minutes. If you are chairing a session that includes both contributed and invited papers please be aware of the different times allocated for each and set the timer as follows:

Considered papers - set timer for 8 minutes to give initial warning, then set the final bell to go off 2 minutes later. When this time is up, allow 2 additional minutes for questions relating to the paper, thank the speaker and promptly introduce the next paper and speaker.

Invited papers - set timer for 25 minutes for initial warning, and the final bell to ring 5 minutes later. Then set the timer for 6 additional minutes for questions from the audience.

Explain the timing system to the audience prior to the start of the session, and as often during the session as you think necessary.

• The By-Laws of the Society request that speakers be asked to stop when their allotted time is up in a courteous but firm manner. Keep in mind that the session must end on time, and that the last speaker has just as much right to an audience as does the first speaker.
PROGRAM FORMAT

• Should a speaker fail to appear, you must wait 12 minutes before going on to the next speaker. At the end of the session, call again for the regularly scheduled paper, if time allows.

• When two or more papers are submitted by an author, only one of these will be assigned a scheduled presentation time within that session. It is assumed that the first author listed in the abstract is the person who will present the paper at the meeting. A second abstract submitted by the same author is automatically assigned to a poster.

• If any problems arise that you are unable to handle relative to successfully chairing the session, please inform the A-V tech in the room, or go immediately to the APS registration desk to alert APS staff.

GENERAL A-V POLICY
In keeping with our legally binding contract with our A-V vendor, speakers are not permitted to bring their own projection equipment for use at the meeting.

Standard A-V in All Sessions
The standard A-V package consists of an LCD projector, overhead projector, screen, laser pointer and 2 lapel microphones—one for the chair and one for the speakers. Any additional A-V equipment must be rented by the speaker directly through APS’s designated A-V provider located in Room C150. The speaker is responsible for the cost of renting any additional equipment.

Policy and Guidelines on Use of LCD Projectors
The responsibility for a smooth, technically trouble-free presentation ultimately rests with the presenter. Speakers who plan to use LCDs must do the following:

• Bring your own laptop computer, power cord, and any proprietary cords required for your computer. Do not bring your own projector to the meeting. NOTE: APS is not responsible for the security of personal laptop computers.

• Visit the Speaker-Ready room located in Room C150 to run through the presentation to ensure a smooth and technically trouble-free talk. Testing your presentation in the Speaker-Ready room prior to your presentation is strongly recommended to minimize equipment compatibility difficulties. Remember that time used to set up equipment reduces the time you have to make your presentation.

• Bring a back-up vu-graph presentation in case there are set-up difficulties with the LCD equipment.
2011 PRIZES AND AWARDS

BIOL OGI C AL PHYSICS DOCTORAL THESIS RESEARCH AWARD
Session L42

Erez Lieberman-Aiden
Harvard University

Citation: For exceptional contributions to the understanding of self-assembly principles and their use to design and control materials with targeted functionalities.

DAVID A DLER AWARD
Session P3

Stephen Pearton
University of Florida

Citation: For contributions to the development of compound semiconductor processing methods crucial to the development of electronic and photonic devices.

LE ROY A PKER AWARD
Session D41

Christopher Chudzicki
Williams College

Citation: Parallel Entanglement Distribution on Hypercube Networks.

Session D41

Chia Wei Hsu
Wesleyan University

Citation: Self-Assembly of DNA-Linked Nanoparticles.

OLIVER BUCKLEY PRIZE
Session T3

Juan Carlos Campuzano
Argonne National Laboratory

Peter D. Johnson
Brookhaven National Laboratory

Zhi-Xun Shen
Stanford University

Citation: For innovations in angle-resolved photoemission spectroscopy, which advanced the understanding of the cuprate superconductors, and transformed the study of strongly-correlated electronic systems.

DAVISSON - GERMER PRIZE
Session T3

Joachim Stohr
Stanford University

Citation: For the development of soft x-ray based spectroscopy and microscopy leading to fundamental contributions to the understanding of chemical bonding, magnetism and dynamics at surfaces and interfaces.

MAX DELBRUCK BI OLOGICAL PHYSICS PRIZE
Session A7

Xiaowei Zhuang
Harvard University

Citation: For contributions to the field of single molecule biophysics and super-resolution imaging.

JOHN D ILLON MEDAL
Session L42

Raffaele Mezzenga
University of Fribourg, Perolles

Citation: For exceptional contributions to the understanding of self-assembly principles and their use to design and control materials with targeted functionalities.

MARIA GOEPPERT MAYER AWARD
Session Y14

Reka Albert
Penn State University

Citation: For her imaginative and pioneering studies of networks.

DAN NIE HEINE M AN AWARD
Session A8

Herbert Spohn
TU Muenchen

Citation: For his seminal contributions to nonequilibrium statistical mechanics as exemplified by his exact solutions of growth models and stationary states of open systems. Combining mathematical rigor with physical insight his work elucidates the transition from microscopic to macroscopic behavior.
2011 PRIZES AND AWARDS

**JOSEPH F. KEITHLEY AWARD**
Session T4

**Ian Walmsley**  
*University of Oxford*

Citation: For the development of concepts and methods for the complete characterization of ultrashort electromagnetic pulses by means of spectral shearing interferometry.

**GEORGEPAKE**
Session P3

**Bernard S. Meyerson**  
*IBM T.J. Watson Research Center*

Citation: For his excellence in scientific, engineering, and business leadership, including his ground-breaking contributions to the development and commercialization of Si-Ge semiconductor technology and mixed-signal semiconductor applications.

**IRVING LANGLEY PRIZE**
Session H41

**Stephen Leone**  
*University of California, Berkeley*

Citation: For his pioneering use of soft x-rays in probing ultrafast dynamics in atomic and molecular systems.

**EARLE PLYLER**
Session B38

**Shaul Mukamel**  
*University of California, Irvine*

Citation: For seminal contributions toward establishing the theoretical underpinnings of nonlinear interactions between light and matter and for providing the field of ultrafast spectroscopy with the tools to develop new non-linear methods based on his work.

**NICHOLAS METROPOLIS DISSERTATION AWARD**
Session H24

**Dmitry Fedosov**  
*Brown University*

Citation: Multiscale Modeling of Blood Flow and Soft Matter.

**POLYMER PRIZE**
Session H4

**Gary Grest**  
*Sandia National Laboratory*

**Kurt Kremer**  
*Max Planck Institute for Polymer Research*

Citation: For establishing numerical simulation as a tool on equal footing with experiment and theory in the field of polymer science, as exemplified by their seminal simulations of entangled polymer melt dynamics.

**JAMES McGRODDY PRIZE**
Session T3

**Arthur P. Ramirez**  
*University of California, Santa Cruz*

Citation: For the intellectual leadership leading to the identification of geometrically frustrated magnets as an important class of materials.

**LARS ONSAGER PRIZE**
Session A8

**Alexander A. Belavin**  
*A.D. Landau Institute for Theoretical Physics*

**Alexander M. Polyakov**  
*Princeton University*

**Alexander B. Zamolodchikov**  
*Rutgers University*

Citation: For outstanding contributions to theoretical physics, and especially for the remarkable ideas that they introduced concerning conformal field theory and soluble models of statistical mechanics in two dimensions.

**PRIZE FOR INDUSTRIAL APPLICATIONS OF PHYSICS**
Session P3

**Nicolas P. Economou**  
*ALIS Corporation*

**William Ward**  
*ALIS Corporation*

Citation: For innovative developments in the physics of field ion microscopy and the invention and commercial introduction of the Helium Ion Microscope.
APS Exhibit Hours
Monday, March 21 ...................................10:00am–5:00pm
Tuesday, March 22 ....................................10:00am–5:00pm
Wednesday, March 23 .............................10:00am–4:00pm

The following is a list of exhibitors participating in the March Meeting 2011. Please take time during your meeting to visit the exhibits. You must wear your badge to be admitted to the exhibits.

Exhibitors
Advanced Research Systems, Inc.
Agilent Technologies
AIP Publishing
AJA International, Inc.
American Magnetics Inc.
American Physical Society
Ames Laboratory, USDOE, Materials Preparation Center
Amuneal Manufacturing Corporation
Andeen-Hagerling, Inc.
Annual Reviews
Apogee Imaging Systems
AR RF/Microwave Instrumentation
Asylum Research
Attocube Systems AG
Blake Industries, Inc.
Bruker AXS Inc.
Bruker BioSpin Corporation, EPR Division
Cambridge University Press
Cox Co., Ltd.
ColdQuanta
Computing in Science & Engineering (CISE)
Cryo Industries of America, Inc.
CRYOFAB, Inc.
Cryogenic Control Systems, Inc.
Cryogenic Limited
Cryomagnetics, Inc.
Cryomech Inc.
DCA Instruments
Diamond Detectors Ltd.
Easylab Technologies LTD
Electro Optical Components, Inc.
Elsevier
Entropy GmbH
First Nano, a Div. of CVD Equipment
GMW Associates
Graphene Laboratories Inc.
GWR Instruments
Health Physics Society
HPD inc.
Huntington Mechanical Labs
IET Inspec
InstruTech, Inc.
IOP Publishing
J.A. Woollam Co., Inc.
Janis Research Company, Inc.
Johnsen Ultravac
Keithley Instruments, Inc.
Kepco Inc.
Kimball Physics, Inc.
Kurt J. Lesker Company
Lake Shore Cryotronics Inc.
MacKichan Software
Mad City Labs, Inc.
Materials Research Society
McAllister Technical Services
MDC Vacuum Products, LLC
MEWASA North America, Inc.
MMR Technologies, Inc.
Montana Instruments
MTI Corporation
NanAndMore USA, Inc.
Nanomagnetics Instruments Ltd.
Nanonics Imaging Ltd
National High Magnetic Field Laboratory
National Nanotechnology Infrastructure Network
National Research Council of the National Academies
Nature Publishing Group
Neaspec GmbH
Nor-Cal Products, Inc.
Novocontrol America, Inc.
Omicron Nanotechnology USA
OriginLab Corporation
Oxford Applied Research
Oxford Instruments America
Oxford University Press
Park Systems, Inc.
Pfeiffer Vacuum
Photonis
Physical Society of Japan
Physics Today
Piezosystem jena
PNAS
Princeton Scientific Corp.
Princeton University Press
Quantum Design
QuantumWise A/S
QuinStar Tech. Inc./PAMTECH Inc.
Radiant Technologies, Inc.
Raith USA, Inc.
RHK Technology, Inc.
Rigaku Americas Corporation
Royal Society of Chemistry, Cambridge
Scientific Computing & Modeling (SCM)
Scientific Instruments, Inc.
Scientific Magnetics
Signal Recovery
Solartron Analytical
SPECS GmbH
Springer
Staib Instruments, Inc.
Stanford Research Systems (SRS)
STAR Cryoelectronics
Taylor & Francis Group LLC - CRC Press
TeachSpin, Inc.
TREK, Inc.
Ulvac
VAT
VG Scienta, Inc.
VisiTech International
WebAssign
Wiley-Blackwell
WITec Instruments Corp.
World Scientific Publishing Company
Zurich Instruments
Advanced Research Systems, Inc..................................................#604,606
www.arscryo.com
ARS manufactures its own Closed Cycle Cryocoolers and Helitran® Cryostats for material characterization. Cryostats are available for optical and non-optical (transport, XRD, Neutron Scattering, UHV & Microscopy) applications. The ARS (CCR) Cryocoolers have been redesigned for a temperature range of 1.5 to 300K or 3 to 800K. With <5 nm vibrations at the sample, it is the cryocooler of choice for laboratory cryogenic applications. The Helitran has Atomic Level Resolution which makes it ideal for STM. ARS offers a series of probe stations with Closed Cycle Cryocoolers and Flow Cryostats for sub micron vibration levels, and a temperature range of 3K up to 800K.

Agilent Technologies.............................................................#601,603
www.Agilent.com/find/nano
Agilent offers state-of-the-art microscopy solutions tailored specifically for nanoscience. The S600LS AFM with exclusive scanning microwave microscopy for calibrated capacitance & dopant measurement, the 5500 AFM with superb environmental capabilities and the compact 8500 FE-SEM optimized for low-voltage imaging, high surface contrast, and resolution found only in large, expensive field-emission microscopes.

AIP Publishing......................................................................#400
www.aip.org
AIP publishes world-class physics content, including our newest entry, AIP Advances, an open-access, rapid-publication journal covering applied physical science. Visit us at booth 400 to also learn about UniPHY, a first-of-its-kind professional and social networking platform for physical scientists. We invite you to join us, as well, for the joint APS/AIP Meet the Editors Reception, Tuesday, March 22 from 4:00pm to 6:00pm. AIP will also be sponsoring a wine and cheese reception on Monday, March 21 and Tuesday, March 22 from 4:00pm to 5:00pm. In addition, we will be holding a raffle at the booth for an Apple iPad.

AJA International, Inc.............................................................#202
www.ajaint.com
Sputtering and E-beam Systems for R&D and Pilot Production. Static and Rotating Magnetron Sputter Sources for HV and UHV, Substrate Holders with Rotation, RF Biasing, Heating and Cooling; Sputter Targets, Microwave, RF and DC Power Supplies, Microwave Components and Plasma Sources, RF I on/Plasma Sources.

American Magnetics Inc......................................................#410
www.americanmagnetics.com
For the past 40 years AMI has been offering superconducting magnet solutions to meet almost any requirement. These include cryogen free magnet systems, magneto-optic systems for spectroscopy, computer controlled vector field MAxes™ systems & other standard systems for condensed matter physics applications. Other products include cryogen level instruments, magnet power supplies, cryo-mechanical assemblies and vapor cooled current leads. For more details visit our website: www.americanmagnetics.com

American Physical Society ..................................................#300
www.aps.org
The American Physical Society is the publisher of the world’s most prestigious and widely-read physics research publications: Physical Review, Physical Review Letters, Reviews of Modern Physics, PR-Special Topics-Accelerators and Beams, PR-Special Topics-Physics Education Research, Focus, and Physics. Look for details on the newest journal, Physical Review X, an entirely open access journal for all fields of physics, applications, and related fields. For more information, please visit booth #300 in the exhibit hall.

Ames Laboratory, USDOE, Materials Preparation Center .... #731
www.mpc.ameslab.gov
The Materials Preparation Center (MPC) is a U.S. Department of Energy BES specialized research center located at the Ames Laboratory. MPC is recognized by the research community for its capabilities in the preparation, purification, single crystal growth, and characterization of rare earth metals, alkaline-earth metals, and refractory metal materials.

Amuneal Manufacturing Corporation .................................#619
www.amuneal.com
CUSTOM MAGNETIC SHIELDING. Amuneal Manufacturing Corporation designs and fabricates custom magnetic shield components and assemblies for both room temperature and cryogenic applications, and is a world leader in providing cost-effective shielding solutions to the applied physics community. From design and attenuation calculations to 3D modeling, we work with you to provide the best shield for your specific application. All Amuneal fabricated magnetic shields are hydrogen annealed in our in-house heat treat center for maximum shielding properties.

Andeen-Hagerling, Inc.......................................................#408
www.andeen-hagerling.com
Andeen-Hagerling (AH) manufactures the world’s most precise capacitance/loss bridges and capacitance standards. AH bridges are fully automatic and resolve sub-attofarad measurements. Loss (dissipation factor) is measured down to 1.5x10^{-8} tanδ.

Annual Reviews ...............................................................#728
www.annualreviews.org
Annual Reviews journals offer comprehensive, insightful reviews written by experts in 40 disciplines in the Biomedical, Life, Physical, and Social Sciences. The new Annual Review of Condensed Matter Physics, will address advances in this discipline and related subjects. Stop by Booth #728 for your free copy of Volume 1.

Apogee Imaging Systems ...................................................#433
www.ccd.com
Apogee Imaging Systems(formerly Apogee Instruments) manufactures cooled CCD cameras for scientific applications. Our cameras are used in more than 50 countries, from government and private research laboratories to the best of world-class professional observatories. Apogee has developed a wide variety of technologies to solve our customers’ problems in astronomy and spectroscopy for customers demanding low noise, high sensitivity, and high quantitative accuracy.

AR RF/Microwave Instrumentation .................................#411,409
www.ar-worldwide.com
AR RF/Microwave Instrumentation manufacturers broadband, high-power amplifiers from dc 45 GHz, 1 - 50,000 watts; and are primarily used for radiated and conducted susceptibility testing, but are suitable for general laboratory use. Available test accessories include antennas, directional couplers, field monitoring equipment, EMC test software and more.

Asylum Research .............................................................#309
www.AsylumResearch.com
The AFM/SPM technology leader will demonstrate Cypher™, the world’s highest resolution AFM, combining the accuracy and control of closed loop with atomic resolution for the most accurate images and measurements possible today. Featured are SpotOn™ automated laser and photodiode alignment, >20X faster AC imaging with cantilevers smaller than 10um, integrated acoustic/vibration isolation, and thermal control for image and...
The Bruker name has become synonymous with the excellence, innovation, and quality that characterizes our comprehensive range of scientific instrumentation. Our solutions encompass a wide range of analytical techniques ranging from analytical X-ray and atomic force microscopy (AFM) to magnetic resonance and EPR spectroscopy. Visit us at booth #210 to learn how we can help you with your analytical needs.

Cambridge University Press publishes high-quality textbooks and monographs by world-class authors in condensed matter physics. Recent titles on display include: the second edition of Condensed Matter Field Theory by Altland and Simons, A Kinetic View of Statistical Mechanics by Krapivsky, Redner and Ben-Naim, Complex Networks by Havlin and Chen, Coming of Age with Quantum Information by Fuchs, and Research Methods for Science by Marder.

Coax Co., Ltd. is the worldwide supplier of semi-rigid coaxial cables in Japan, offering unique cables using various materials such as Nb, NbTi, CuNi, SUS, BeCu, Brass, diameters 0.33mm to 9.62mm. They are ideal solutions for cryogenic, non-magnetic, and superconducting requirements. SMA, SSMA, K, MMCCX and other types of connectors are available.

ColdQuanta focuses on the development of BEC (Bose-Einstein Condensate), Ultra-Cold and Cold Atom generating devices and systems, allowing them to be accessible to a wide range of research, educational, and industrial institutions. Our products are intended for use in scientific and industrial applications requiring high performance and reliability.

Computing in Science & Engineering (CiSE) is the bimonthly magazine of computational tools and methods. APS members can subscribe to CiSE at a 40% discount. Stop by to pick up recent issues. CiSE helps scientists to address large computational problems by providing: efficient algorithms, system software, computer architecture.

Cryo Industries of America, Inc. With over 26 years of experience, CRYO is a leading supplier of cryogenic systems- standard or custom, open or closed cycle, continuous flow or reservoir type, He-4, He-3 and superconducting magnet systems. We are dedicated to designing and manufacturing cryogenic systems with your specifications and performance needs in mind.

Cryogenic Control Systems, Inc. Manufacturers of precision electronic instrumentation for both laboratory and industrial process control applications. Cryo-con offers a full line of cryogenic temperature controllers, monitors, cryogenic accessories and temperature sensors. On display will be the newest addition to our monitor line, the Model 18C, eight channel temperature monitor as well as our upgraded temperature controllers. Stop by our booth and demo our products.

Cryogenic Limited has supplied hundreds of Cryogen Free Magnets to the scientific community over the past 12 years. Cryogenic has over 40 years of experience in the design and engineering of superconducting magnet systems. Eliminate the worry of the cost or availability of liquid helium. Cryogen Free Magnets and Measurement Systems are available with fields up to 18 Tesla. Configurations include solenoids, split pair, vector and beam–line magnets. Our Turnkey systems require no liquid helium for operation. Simply switch on the cryocooler compressor and the system will be operational in 24-48 hours. The Cryogen Free Measurement System has an integrated variable temperature insert which operates to 1.6K to 1000K.

Cryomagnetics offers a complete line of superconducting magnets to 20T, cryogenic systems to <10mK, related electronic instrumentation, and cryogenic accessories. New products include the Model 510 liquid cryogen level monitor and additional options for the CRYOGEN-FREE C-Mag line. Engineers will be available to discuss standard or custom superconducting magnet applications.
Cryomech Inc. ..............................................................#615, 617
www.cryomech.com
Cryomech introduces the Helium Recovery System. It has been designed to recover boil off from laboratory liquid helium cryostats, compress it and remove the water and air contaminants. It is the right size to supply the liquefaction rates of both Cryomech Liquid Helium Plants (12 - 18 liters per day).

DCA Instruments .........................................................#733
www.DCA.fi
Designs and manufactures a wide range of UHV deposition systems and components. The products include MBE, UHV sputtering, PLD and UHV cluster tools. These DCA deposition systems are suitable for deposition of thin films of semiconductors, magnets, oxides, metals under UHV

EasyLab Technologies LTD ............................................#207
www.easylab.co.uk
EasyLab will be promoting its new and exciting e-commerce site: www.diamondANVILS.com. We established diamondANVILS.com in order to offer scientists high-quality diamond anvils at very competitive prices indeed. We also combine the convenience of online ordering and credit card payment with value added services, such as anvils dimensional and Raman spectra reports.

Electro Optical Components, Inc ....................................#528
www.eoc-inc.com
Electro Optical Components (EOC) provides technologically advanced components for laser and optoelectronic systems from the UV to the far IR. Our products include signal recovery amplifiers and photoreceivers; thermopile, pyroelectric, UV and diamond detectors and arrays; IR and visible laser diodes and modules; optics and coatings (including CO2); low refractive index coatings; interference filters (IR to UV); E-O modulators; beam shapers and many other key E-O components

Elsevier ......................................................................#724
www.elsevier.com
Elsevier is proud to play an essential role in the global science and health communities and to contribute to the advancement of these critical fields. By delivering world-class information and innovative tools to researchers, students, educators and practitioners worldwide, we help them increase their productivity and effectiveness. Our comprehensive library features superior quality content from leading authorities such as Butterworth-Heinemann, Morgan Kaufmann, Syngress, William Andrew and Academic Press. Elsevier also provides high-quality scientific reference tools such as BrainNavigator and HazmatNavigator. Visit Elsevier at booth # 200 and also at elsevierdirect.com

Entropy GmbH ..............................................................#632
www.entropy.cryogenics.com
We design and manufacture ultra-low temperature, dry-cryogenic systems, including ADRs, Dilution Refrigerators, and 4K/77K cooling solutions. We cover a wide range of cryogenic applications including ultra-low temperature experiment design, SQUID applications, optical applications, superconducting detectors, soft x-ray detection and spectroscopy, analysis and optimization for ultra-low noise, high-resolution cryogenic measurements.

First Nano, a Div. of CVD Equipment ............................#335
www.firstnano.com
First Nano, a division of CVD Equipment Corporation, is a worldwide leader for Turn-Key R&D and custom CVD and RTP systems comprising gas delivery, process equipment and exhaust gas conditioning systems using state of the art process control and safety integration software.

GMW Associates ............................................................#629
www.gmw.com
GMW will show: Fluxgate, Hall effect and NMR Magnetic Field Measuring Instruments. Resistive Electromagnet Systems for biological and materials research with controllable fields to ±5T in a 1mm Pole gap. HTS-110 Superconducting Electromagnets for larger field volumes and/or higher fields. Magnetically Shielded Dipoles with fields to 8T and Shielded Solenoids with fields to 16T.

Graphene Laboratories Inc. ..........................................#333
www.graphenelab.com
Graphene Laboratories Inc. operates the Graphene SupermarketTM (www.graphene-supermarket.com), a leading supplier of nanocarbon and graphene products to customers around the globe.  The Graphene SupermarketTM offers a broad range of graphene nanomaterials including CVD grown graphene on foils and wafers, Q-GrapheneTM, graphene nanopowder, graphene oxide, graphene in solution, and reduced graphene oxide.

GWR Instruments ..........................................................#437,435
www.gwrinstruments.com
GWR Instruments Inc. manufactures automated high capacity helium liquefiers using integrated cryocooler technology developed and improved for more than 30 years. These simple-to-use systems are designed to combine energy efficiency with higher liquefaction rates to automatically produce a continuous supply of helium. In addition, GWR liquefiers are self cleaning and provide dependable, un-interrupted service. Available in three capacity sizes (3, 9, and 30 liters per day), these systems can be configured with air-cooled or water-cooled compressors with each output level matched to collection Dewars of 40, 80, and 160 liters, respectively. Integrated helium purifiers are also available for improved performance.

Health Physics Society ..................................................#720
www.hps.org
The Health Physics Society, formed in 1956, is a scientific organization of professionals who specialize in radiation safety. Its mission is to support its members in the practice of their profession and to promote excellence in the science and practice of radiation safety. Today its nearly 6,000 members represent all scientific and technical areas related to radiation safety including academia, government, medicine, research and development, analytical services, consulting, and industry in all 50 states and the District of Columbia. The Society is chartered in the United States as an independent nonprofit scientific organization and, as such, is not affiliated with any
government or industrial organization or private entity. The Society also promotes public information preparation and dissemination, education and training opportunities, and scientific information exchange through conferences and meetings and posting current news items and conducts a program to accredit radiation instrumentation calibration laboratories.

HPD inc. .................................................................................... #224

www.hpd-online.com

High Precision Devices (HPD) will be exhibiting the popular Model 102 Denali Pulse Tube/ADR cryostat and introducing the new Model 103 Rainier Pulse Tube/ADR cryostat. Both of these cryostats incorporate Adiabatic Demagnetization Refrigerators (ADR) producing PT stage temperatures of 45K and 3K and ADR stage temperatures of 900mK and 45mK.

Huntington Mechanical Labs .......................................................... #205

www.huntvac.com

Huntington Mechanical Labs manufacturers vacuum components for research instruments, including custom vacuum chambers, motion transfer and positioning devices, fluid and electrical feedthroughs, valves, viewports, flanges, fittings and foreline traps. They can provide fast quotations from your specifications or drawings.

IET Inspec ................................................................................###716

www.theiet.org/inspec

Inspec, produced by the IET, is the leading English-language database with over 11 million records containing abstracts and subject indexing from 1898 to present covering the fields of physics, electrical engineering & electronics, computers & control, information technology, manufacturing & production engineering and more. Visit our website at www.theiet.org/inspec.

InstruTech, Inc. ...........................................................................#330

www.instrutechinc.com

InstruTech’s core technologies are Convection and Ionization vacuum gauges, utilizing the most recent advances in vacuum gauge sensor and controller design. Vacuum measurement technologies include Convection Enhanced Pirani and Miniature Ionization vacuum gauges with built-in or remote displays providing a measurement range of 1 x 10^-9 Torr to atmosphere.

IOP Publishing ........................................................................####715,717

www.publishing.iop.org

IOP Publishing is a not-for-profit, learned society publisher and world leader in scientific publishing and the electronic dissemination of peer-reviewed research. Stop by our booth (#715) for a personal demonstration of IOPscience, our new and unique platform for IOP-hosted journal content.

J.A. Woollam Co., Inc. ................................................................#305

www.jawoollam.com

J.A. Woollam Company offers a wide range of spectroscopic ellipsometers for nondestructive materials characterization, including thin film thickness (single and multilayer), optical constants, composition, growth/etch rates, and more. Instruments available for research and manufacturing metrology covering spectral ranges from vacuum ultra-violet to far infrared. Offering table-top, in-line, and in-situ models.

Janis Research Company, Inc. ..................................................#200

www.janis.com

Please visit Janis Research at Booth 200. Celebrating our 50th year, Janis Research offers a complete line of standard and customized cryogenic systems including dilution refrigerators, adiabatic demagnetization refrigerators, He-3 & He-4 superconducting magnet systems, cryocoolers, VT cryostats, noble gas cold traps, micromanipulated probe stations, and more.

Johnsen Ultravac ......................................................................#732

www.ultrahivac.com

Johnsen Ultravac is a global supplier of ultra high vacuum products. New products include a 6-axis uhv manipulator with liquid Helium cooling to 10K and sample transfer capability; XYZ motions to customer specifications; with extended polar, azimuthal and tilt motions.

Keithley Instruments, Inc. ......................................................#605,607

www.keithley.com

Keithley Instruments is a world leader in advanced electrical test instruments and systems. Our customers are scientists and engineers in the worldwide electronics industry involved with advanced materials research, semiconductor device development and fabrication, and the production of end products such as portable wireless devices.

Kepco Inc. .....................................................................................#205

www.kecopower.com

Kepco is a manufacturer of electronic power supplies, both modular and instrument type. We specialize in four-quadrant, BOP power supplies which are optimized for driving inductive loads. A wide range of unipolar instrumentation grade, modular hot-swappable and OEM power supplies are also available.

Kimball Physics, Inc. ....................................................................#201

www.kimballphysics.com

Innovative electron and ion guns with matching power supplies ranging in energy from 1 eV to 100 keV, producing beams from small spots to flood while incorporating high performance rugged cathodes. Compact modular UHV vacuum chambers (Multi-CFTM) and fittings with adaptable internal mounting apparatus (Groove-Grabber™ and eV Parts™) to enable complex instrument/experimental set-ups.

Kurt J. Lesker Company ...........................................................#611

www.lesker.com

Deposition systems and components for all vacuum applications, including: sputtering, e-beam evaporation, organics, and atomic layer deposition (ALD). Manufacturer/distributor of: vacuum chambers, subassemblies, standard and custom vacuum hardware, feedthroughs, valves, vacuum pumps, and deposition materials -sputtering targets, evaporation pellets/pieces, and evaporation sources.

Lake Shore Cryotronics Inc. ....................................................#301

www.lakeshore.com

Stop by booth 301 to learn about the new 8400 series Hall effect measurement system (HMS) that’s being developed in collaboration with Toyo Corporation of Japan. Available with an AC field option for measuring very low mobility samples, the new HMS is expected to be available for shipment in August 2011.
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