PROGRAM ACKNOWLEDGMENTS

The APS Officers and Meetings Department staff extend sincere thanks to the unit Program Chairs and the abstract sorters who, during the past year, gave so generously of their time and expertise in sorting abstracts and organizing the program for this March Meeting.

MARCH MEETING 2007 PROGRAM COMMITTEE

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The American Physical Society wishes to thank the following companies for sponsoring activities at the March Meeting 2007.

A special thank you to

Springer

the language of science

For sponsoring the wine and cheese receptions on Monday and Tuesday in the exhibit hall.

For sponsoring the wireless service available to March Meeting attendees.
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GENERAL INFORMATION

Welcome to the Annual March Meeting of the American Physical Society. All scientific sessions and some APS-sponsored sessions will be held at the Colorado Convention Center (CCC). APS affiliated meetings and satellite meetings will be held at the Adam’s Mark Hotel, headquarters hotel for the meeting. Consult the schedule of APS affiliated and satellite meeting schedules in this program for times and locations.

An outstanding scientific program has been planned by the March Meeting Program Committee. The five-day program consists of approximately 6,800 papers to be presented in invited, contributed, focus and poster sessions. A larger, enhanced exhibit show will complement the scientific program. Attendees are encouraged to visit with exhibitors who will be displaying the latest products, instruments and equipment, computer software, as well as science publications related to the research and application of physics.

The APS Committee on Meetings and 2007 March Meeting program committee decided this year not to print a full Bulletin of the American Physical Society. Instead, you are receiving this expanded epitome, which contains the five-day schedule of sessions and a list of the abstracts to be presented in each session, along with the complete author index. The full Bulletin will still be available online and is contained in the accompanying CD you received. At the end of the meeting, a citation number will be assigned to each abstract, which may be used to cite abstracts in other papers. If you wish to look up an abstract, you may do so at the look-up stations provided throughout the convention center.

PARTICIPATING APS UNITS

Divisions: Condensed Matter Physics (DCMP); Materials Physics (DMP); Polymer Physics (DPOLY); Chemical Physics (DCP); Biological Physics (DBP); Fluid Dynamics (DFD); Computational Physics (DCOMP); Atomic, Molecular and Optical Physics (DAMOP).

Topical Groups: Instrument and Measurement Science (GIMS); Magnetism and Its Applications (GMAG); Quantum Information, Concepts, and Computation (GQI); Statistical and Nonlinear Physics (GSNP).

Forums: Industrial and Applied Physics (FIAP); Physics and Society (FPS); History of Physics (FHP); International Physics (FIP); Education (FEd); Graduate Student Affairs (FGSA).

REGISTRATION LOCATION/HOURS

Colorado Convention Center • Lobby F
The APS Registration Desk will open and close at these times:
Sunday, March 4 .......... 2:00pm – 7:00pm
Monday, March 5 ......... 7:00am – 5:00pm
Tuesday, March 6 ......... 7:00am – 5:00pm
Wednesday, March 7 ....... 7:30am – 4:00pm
Thursday, March 8 ......... 7:30am – 3:00pm
Friday, March 9 ............ 7:30am – 10:00am

SHUTTLE BUS SERVICE

All hotels in the APS housing block are within walking distance of the convention center. Nevertheless, APS will provide supplementary shuttle bus service between the hotels and the convention center for those who do not wish to walk — on a limited basis. At peak hours buses will run about every 20 minutes and at non-peak hours buses will run every 30 minutes. Shuttle bus schedules will be available at your hotel, and a sign with the bus schedule will be in every hotel lobby.

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. Attendees without badges will not be admitted to sessions or exhibits. If you have lost 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.

WIRELESS CONNECTION AT CONVENTION CENTER

Wireless service will be available throughout the public space in the Colorado Convention Center and in the exhibit hall. Wireless will not be available in the meeting rooms. Sponsored by Springer.

E-MAIL SERVICE

E-mail service will be available on Monday, Tuesday and Wednesday in the Exhibit Hall during exhibit hours only. E-mail will be available on Thursday and Friday in Lobby F. Email stations will be available for your use during the following hours:

Monday, March 5 .......... 10:00am – 5:00pm (exhibit hall)
Tuesday, March 6 ......... 10:00am – 5:00pm (exhibit hall)
Wednesday, March 7 ....... 10:00am – 4:00pm (exhibit hall)
Thursday, March 8 ........ 7:00am – 6:00pm (Lobby F)
Friday, March 9 .......... 7:00am – 12:00n (Lobby F)

Please be advised that e-mail access is provided as a service to attendees, and that we cannot provide unlimited access to e-mail stations, both in terms of the number of stations provided and the length of time they are available.
APS EXHIBIT SHOW/APS LOUNGE
Convention Center • Exhibit Hall F
Monday, March 5 ............. 10:00am – 5:00pm
Tuesday, March 6 ............. 10:00am – 5:00pm
Wednesday, March 7 ....... 10:00am – 4:00pm

The annual exhibit show days are 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 wear your badge to be admitted to the exhibit hall.

APS MARCH MEETING JOB FAIR
Convention Center • Exhibit Hall • March 5 - 7
Whether you are looking for a job or recruiting, the APS March Job Fair is the place to be! The Job Fair will provide job seekers and hiring managers with unsurpassed recruitment and networking opportunities.

Job Seekers utilize the services to:
Network with technical staff and human resource recruiters; Post your resume and search open positions; Interview for positions.

Employers utilize the services to:
Showcase your company with a Recruitment Booth; advertise open positions; interview qualified job seekers; search resumes specific to this meeting.

The Job Fair is free of charge to all job seekers. There is a nominal fee for employers. For more information, visit http://www.physicstoday.org/jobs/APSMarch_jobfair.html or contact Alix Brice at jobfairs@aps.org or at 301-209-3187.

APS JOURNALS BOOTH
Booth #1001-1003
Convention Center • Exhibit Hall F

Editors from the journals and members of the technical and marketing staffs will be on hand at the APS Journal Booth during the APS exhibit show 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.

TALK TO THE APS JOURNAL EDITORS
Monday, Tuesday, Wednesday during the exhibit hours
Booth #1001-1003

Editors from Physical Review Letters, Physical Review B, Physical Review E, Physical Review Special Topics: Physics Education Research, and Reviews of Modern Physics will be available at the APS Exhibit Booth to discuss the peer review and editorial processes and publication of the journals. They look forward to interacting with you on these matters, and to the opportunity to thank you in person for your contributions as an author or reviewer.

APS editors 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. They 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.

APS MEMBERSHIP BOOTH
The APS Membership Booth is located near APS Registration in Lobby F of the convention center. Membership Department staff will be on hand to answer questions about APS Membership and journal subscriptions.

APS SOUVENIR STORE
Convention Center • Lobby F
Monday ..................... 12:00am – 5:00pm
Tuesday/Wednesday...... 9:00am – 5:00pm
Thursday ................... 9:00am – 3:00pm

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

A-V OFFICE
Convention Center • Room 111-113

SPEAKER-READY ROOM
Convention Center • Room 109
The speaker-ready room will be open as follows:
Sunday, March 4 .......... 1:00pm – 7:00pm
Monday, March 5 ........... 7:00am – 5:00pm
Tuesday, March 6 .......... 7:00am – 5:00pm
Wednesday, March 7 ...... 7:00am – 5:00pm
Thursday, March 8 ........ 7:00am – 5:00pm
Friday, March 9 .......... 7:00am – 12:00noon

PRESS ROOM
Convention Center, Press Room: 210/212
Monday through Thursday • 8:00am – 5:00pm
Friday • 8:00am-12:00noon
Phone: 303-228-8265
Fax: 303-228-8269

NEWS CONFERENCE ROOM
Convention Center • Room 208
A schedule of news conferences can be obtained from the Press Room.

DENVER CITY INFORMATION DESK
The Denver Convention and Visitors Bureau will host an information desk during the March Meeting. Stop by to get a city map and inquire about sightseeing and restaurants in Denver.
Sunday, March 4 .......... 2:00pm – 7:00pm
Monday, March 5 ........... 11:00am – 5:00pm
Tuesday, March 6 .......... 11:00am – 5:00pm
Wednesday, March 7 ...... 11:00am – 5:00pm

BUSINESS CENTER
The Colorado Convention Center business center is located in the Lobby A Concourse. The business center offers a full range of services and is open Monday through Friday 7:30am – 5:30pm.
**PRE-MEETING PROGRAMS**

**DPOLY SHORT COURSE: ADVANCES IN THE USE OF ATOMIC FORCE MICROSCOPY FOR STUDIES OF THE PHYSICS OF MACROMOLECULAR MATERIALS**

Colorado Convention Center • Room 107

No on-site registration. You must be pre-registered to attend this course. To learn more about this course go to: [www.aps.org/meet/MAR07](http://www.aps.org/meet/MAR07) and click on pre-meeting programs.

Saturday March 3 .......... 8:30am – 5:00pm
Sunday March 4 ............ 8:30am – 3:00pm

**TUTORIALS**

Colorado Convention Center

No on-site registration. You must be pre-registered to attend a tutorial. To learn more about the tutorials go to: [www.aps.org/meet/MAR07](http://www.aps.org/meet/MAR07) and click on pre-meeting programs. Please note: rooms are subject to change.

**Sunday, March 4**

Morning Tutorials #1-3
8:30am -12:30pm

T1 Magnetism at the Nanoscale – Room 103/105
T2 Statistical and Thermal Physics with Interactive Computer-based Tutorials – Room 110
T3 Quantum Error Correction and Fault-Tolerant Quantum Computation – Room 108

Afternoon Tutorials #4-7
1:30 pm - 5:30 pm

T4 Spintronics: Latest Developments – Room 103/105
T5 The Revolution in Quantum Turbulence - Room 101
T6 Physics of Graphene – Room 102/104/106
T7 Attosecond Science: Latest Developments - Room 110

**CAREER WORKSHOP**

Sunday, March 4 • 4:00pm – 8:00pm
Convention Center • Room 201

This workshop is free to all APS March Meeting attendees. The purpose of the workshop is to provide information on career choices in physics. Topics such as: how to prepare an effective resume, interviewing skills, networking, job search skills, clarifying expectations, and diverse options will be covered. Each workshop participant will receive a package of career development materials. No pre-signup is required.

**4TH APS WORKSHOP ON OPPORTUNITIES IN BIOLOGICAL PHYSICS**

Organized by the APS Division of Biological Physics

Sunday, March 4 • 8:30am – 5:00pm
Colorado Convention Center • Room 203/205

Modern Biomedicine provides a host of research and employment opportunities for physicists. New techniques for monitoring and manipulating complex biological processes at the molecular level promise to revolutionize our ability to understand and control normal and disease states. This workshop will introduce some of the most exciting recent and prospective areas of this rapidly expanding field. Topics will include tissue mechanics, tissue engineering, regenerative medicine, microfluidics and micro-optics. Speakers from academia and industry will provide extensive tutorial overviews, accessible to non-specialists. Breaks and a lunch with speakers will allow ample time for participants to discuss their current and future scientific and career directions with the speakers. The workshop is aimed at all physicists who are curious about the interface between physics and biology, especially graduate students and post-docs who are eager to apply their expertise in novel ways in the life sciences.

The workshop will start at 8:30am and run until approximately 5:00pm. The pre-registration deadline is February 2, 2007. Pre-registration fees are $50 for students, $75 for postdoctoral researchers and $100 for all others. The registration fee includes a box lunch. On-site registration will be allowed with a late fee ($20) and cash payment only, but availability of box lunches is not guaranteed for late registrants.

**PROFESSIONAL SKILLS DEVELOPMENT FOR WOMEN PHYSICISTS**

Sunday, March 4 • 8:00 am – 5:00 pm
Adam’s Mark Hotel, Governor’s Square 10
Reception: 5:00 – 6:30 pm

This one-day workshop will offer training on persuasive negotiation and communication skills for senior women physicists in industry and government labs. The workshop will be led by professional facilitators using an interactive format that encourages highly personal learning. Lunch will be provided and a reception for participants will follow the workshop. Limited to 30 participants. No on-site registration.
CONTACT CONGRESS
Sunday ............................ 3:00pm – 6:00pm
Mon-Wed ........................ 9:00am – 5:00pm
Thursday ........................ 9:00am – 2:00pm
Sponsored by DCMP and DMP
Convention Center • Lobby F

Worried about the slashing of NSF, DoE and NASA funding? Concerned about the dearth of science literacy in our high-schoolers? Anxious about where the country’s security is heading? YOU can have an impact on national science policy! Come write your representatives in Congress to let them know how you feel about science issues of interest to you. The most important letters that a Member of Congress receives are the ones from his or her constituents – you elect them, and you matter. The American Physical Society feels that it is incumbent on all of us to interact with the government, to offer technical assistance where we can, and to remind our Members of Congress that scientists have much to offer the country, in areas of basic science R&D funding, education, and energy policy. We have set up computers in the entrance area where you can send a letter to your Senators and Representatives. You can use our template or write your own letter on issues that matter to you.

If the state of affairs in Washington, DC, interests you, we have another way for you to get involved: the APS “Physics and Government Network,” a group of APS members who volunteer to contact their representatives in Congress a few times a year at critical junctures. PGNet signup fliers will be available at the registration desk and at the “Contact Congress” computers. Come help make science more visible in Congress!

AWARDS PROGRAM
Session E1
Monday, March 5 • 5:45pm – 6:45pm
Convention Center • Room 205

Prizes and awards will be bestowed on individuals for outstanding contributions to physics. Please plan on attending the Awards Program and join us in honoring these individuals. See pages 14-15 for a list of award and prize winners. The Awards Program will be followed by the Welcome Reception at 6:45pm.

WELCOME RECEPTION
Session F1
Monday, March 5 • 6:45 pm – 7:45pm
Convention Center • Four Seasons Ballroom I
All attendees are invited.

SPECIAL SYMPOSIUM: 50 YEARS OF BCS THEORY
Session G1
Monday, March 5 • 8:00pm – 10:00pm
Adam’s Mark Hotel, Plaza ABC
Speakers:
Doug Scalapino, UC Santa Barbara
John Rowell, Arizona State University
Gordon Baym, University of Illinois

WINE AND CHEESE RECEPTIONS
Monday and Tuesday • 4:00pm – 5:00pm
Convention Center • Exhibit Hall F
Sponsored by Springer

ESTATE PLANNING SEMINAR
Session L36
Tuesday, March 6 • 1:00pm – 2:30pm
Convention Center • Room 107

PANEL DISCUSSION WITH APS JOURNAL EDITORS
Session L36
Tuesday, March 6 • 2:30pm – 3:30pm
Convention Center • Room 406/407

Editors from Physical Review Letters and the Physical Review will provide useful information and tips for referees and authors. The information presented will be relevant to anyone who submits or reviews manuscripts, or anyone who would like to add to their knowledge of and experience with the authoring and refereeing processes. Topics for discussion will include: (1) how to write good manuscripts and referee reports; (2) differences between manuscripts intended for PRL versus PR; (3) the roles of the authors and referees in the review process, etc. Following short presentations from the PRL and PR editors, there will be a moderated discussion of these and other topics. Questions from the audience will be most welcome.

Editors from Physical Review A, B, E, and Letters will respond to questions and comments (general, not manuscript specific) from the audience. The panel will address current issues facing the journals, including possible enhancements of both content and delivery. It also will discuss long-standing issues related to growth in submissions, such as ways to maintain and improve the efficiency of the selection process and the quality of published articles. The editors will seek opinions on these and other issues, and look forward to a productive exchange. The panel discussion will be followed by the Meet-the-Editors Reception.
MEET THE JOURNAL EDITORS OF AIP AND APS
RECEPTION
Tuesday, March 6 • 3:30pm – 5:30 pm
Convention Center • Four Seasons Ballroom Foyer

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

JOURNALS OF THE AMERICAN
PHYSICAL SOCIETY:
Physical Review A
Physical Review B
Physical Review E
Physical Review Focus
Physical Review Letters
Physical Review Special Topics
— Physics Education Research
Reviews of Modern Physics

JOURNALS OF THE AMERICAN
INSTITUTE OF PHYSICS:
Applied Physics Letters
Biophysics
Chaos
Journal of Applied Physics
The Journal of Chemical Physics
Journal of Mathematical Physics
Physics of Fluids
Physics of Plasmas
Review of Scientific Instruments

PHYSICS SING-A-LONG/LISTEN-A-LONG
Tuesday, March 6 • 8:30pm – 10:00pm
Adam’s Mark Hotel • Director’s Row H

SPECIAL SYMPOSIUM:
CHANGE IN CONTROL! CHANGE FOR SCIENCE?
Session T1
Wednesday, March 7 • 7:30pm – 9:00pm
Adam’s Mark Hotel • Plaza Ballroom ABC
Moderator: Michael S. Lubell, American Physical Society and
The City College of CUNY
Panelists: Current and former Hill staffers

The November 2006 election put the Democrats in control of both
house of Congress for the first time in 12 years. The panel of experts
will use their wisdom and predictive powers to assess the impact of
the political change on science policy and science budgets. Two for-
mer Hill staffers will provide the view from the outside; two current
staffers will provide the enlightenment from the inside.

PUBLIC LECTURE:
THURSDAY NIGHT FOOTBALL WITH TIM GAY
Speaker: Tim Gay, University of Nebraska
Thursday, March 8
7:00pm – 9:00pm (lecture followed by book signing)
Adam’s Mark Hotel • Grand Ballroom, Tower Building

This talk discusses a series of one-minute physics lectures given
to the ~ 8 x 10^4 fans that attend the University of Nebraska home
football games. The lecture topics range from gyroscopic motion to
ionizing collisions between linebackers and I-backs. The problem of
simultaneous edification and amusement of the fan in the stands is
considered.

COM/CSWP DESSERT RECEPTION
Tuesday, March 6 • 7:00pm – 8:30pm
Adam’s Mark Hotel • Governor Square 16

The APS Committee on Minorities in Physics (COM) will co-spon-
sor a reception with the Committee on the Status of Women in Physics
(CSWP). This is a wonderful opportunity to learn about the work of
the Committees, to network with colleagues, and to unwind after a
long day of sessions. All are welcome to join us.
JOINT APS/AIP INDUSTRIAL OUTREACH MIXER
Sunday, March 4 • 4:00pm – 6:00pm
Adam’s Mark Hotel • Governor’s Square 15
By Invitation Only

COMPANIONS BREAKFAST
Monday, March 5 • 9:00am – 10:30am
Adam’s Mark Hotel • Governor’s Square 9

Companions of the attendees of the March Meeting are invited to a complimentary breakfast to meet other companions and learn about the city of Denver. Presentations will be made by a representative of the Denver Convention and Visitors Bureau. At the breakfast you will receive information about the sights and attractions in the city.

CSWP/FIAP NETWORKING BREAKFAST
Tuesday, March 6 • 7:30 am – 9:30 am
Convention Center • Room 107

CSWP and the Forum on Industrial and Applied Physics (FIAP) are the co-sponsors of this networking breakfast. Both men and women are welcome. Cost: $15. $5 for physics students, thanks to FIAP’s generosity. Please preregister as there may be only limited space for walk-ins.

HIGH SCHOOL PHYSICS TEACHERS DAY
Tuesday, March 6 • 8:00am – 2:30pm
Adam’s Mark Hotel • Governor’s Square 14

In conjunction with the March Meeting 2007, the APS Department of Education & Diversity is sponsoring a High School Physics Teachers’ Day for teachers in the Denver region. For more information contact Ed Lee: lee@aps.org

The day’s program includes:
• Hands-on workshops presenting innovative, classroom-ready activities
• Research talks on cutting-edge physics
• A welcoming breakfast, and a chance to network with fellow teachers
• Lunch with a Physicist

STUDENT RECEPTION
Sponsored by the Forum on Graduate Student Affairs (FGSA)
Tuesday, March 6 • 5:30pm – 6:30pm
Convention Center • Four Seasons Ballroom 1

All students are welcome. Plan to attend and socialize with your fellows and enjoy the refreshments. The Forum on Graduate Student Affairs (FGSA) will present a short program.

DCMP/DMP/DCOMP FELLOWS & AWARDS RECEPTION
Tuesday, March 6 • 5:30pm – 7:00pm
Adam’s Mark Hotel • Plaza Ballroom AB

EXCELLENCE IN EDUCATION Awardees RECEPTION
(Fed)
Tuesday, March 6 • 5:30pm – 6:30pm (after Invited session)
Convention Center • Korbel 4A-B

FORUM ON INTERNATIONAL PHYSICS RECEPTION
Tuesday, March 6 • 6:00pm – 8:00pm
Adam’s Mark Hotel • Governor’s Square 12

COMMITTEE ON MINORITIES AND COMMITTEE ON THE STATUS OF WOMEN IN PHYSICS DESSERT RECEPTION
Tuesday, March 6 • 7:00pm – 8:30pm
Adam’s Mark Hotel • Governor’s Square 16

STUDENTS LUNCH WITH THE EXPERTS
Wednesday, March 7 • 1:00pm – 2:30pm
Convention Center • Four Seasons Ballroom I

Students can sign up on-site to enjoy a complimentary box-lunch while participating in an informal discussion with an expert on a topic of interest to them. Sign-up will take place beginning on Monday, March 5 at 1:00pm at the APS registration desk, and will be on a first-come, first-served basis. Attendance is limited to eight students per topic. See page 13 for list of topics and experts.

RECEPTION FOR ADVANCED LABORATORY INSTRUCTORS
Sponsored by the APS Forum on Education and others
Wednesday, March 7 • 6:00pm – 8:00pm
Adam’s Mark Hotel • Governor’s Square 14
APS UNIT BUSINESS MEETINGS

TUESDAY, MARCH 6
4:30pm – 5:30pm
Adam's Mark Hotel

FIP Business Meeting ................. Plaza Court 5

TUESDAY, MARCH 6
5:45pm – 6:45pm
Convention Center

DPOLY Business Meeting ............... Room 201
FIAP Business Meeting ................. Room 502
DCP Business Meeting ................. Room 104
GIMS Business Meeting ............... Room 501
DBP Business Meeting ................. Room 405
GSNP Business Meeting ............... Room 108
GMAG Business Meeting .............. Korbel 3C
GQI Business Meeting ................. Room 403

TUESDAY, MARCH 6
7:00pm – 8:00pm
Adam's Mark Hotel

DCMP Business Meeting .............. Plaza Court 6
DMP Business Meeting ............... Plaza Court 7

WEDNESDAY, MARCH 7
5:45pm – 6:46pm
Convention Center

DCOMP Business Meeting ............ Room 106
SATELLITE MEETINGS
(ancillary events sponsored by non-APS groups)

SPECIAL FIELD TRIP:
ENERGY RESEARCH AND PHYSICS EDUCATION IN COLORADO
Sunday, March 4
Limited to 300 participants; Complimentary
4:30 pm: Buses begin pick up at the Convention Center to Golden every half hour until 6:00pm
5:00 pm – 7:00 pm: Open House
7:00 pm – 8:00 pm: Public Lecture (Presidential Lecture Series)
8:00 pm – 9:00 pm: Reception
RSVP to https://hagrid.mines.edu/outreach/cont_ed/APS-fieldtrip_pgp.html
Research and education related to renewable and alternative energy are in the forefront due to many factors, including increased interest at the Department of Energy, concern over fossil-fuel energy prices, and concern over dependence on foreign suppliers. Many members of the APS are actively pursuing research in this important area.

The three major research Universities in Colorado, the Colorado School of Mines (CSM), Colorado State University (CSU), and the University of Colorado at Boulder (CU), have created a formal collaboration with the National Renewable Energy Laboratory (NREL) to coordinate interdisciplinary research and education related to renewable and alternative energy. The organization, called the Colorado Laboratory, proposes to host an open house at the Colorado School of Mines on Sunday, March 4 between 5:00pm and 7:00pm, followed by a lecture from 7:00pm to 8:00pm, followed by a reception. Buses will shuttle attendees from the Adam’s Mark Hotel in downtown Denver to Golden, about a 15-minute trip. These buses will run continuously throughout the evening.

PREDICTIVE CAPABILITIES FOR STRONGLY CORRELATED MATERIALS (CMSN)
Sunday, March 4 • 2:00pm – 6:00pm
Adam’s Mark Hotel • Directors Row H

CHAOS EDITORIAL BOARD MEETING
Monday, March 5 • 12:00n – 2:00pm
Adam’s Mark Hotel • Plaza Court 8

RESEARCH CORPORATION RECEPTION
Tuesday, March 6 • 5:30pm – 7:00pm
Adam’s Mark Hotel • Director’s Row E

DISCUSSION ON RESEARCH FUNDING FROM THE NATIONAL SCIENCE FOUNDATION
Tuesday, March 6 • 6:45pm – 7:30pm
Convention Center • Room 201

ALUMNI REUNIONS
Tuesday, March 6 • 6:00pm – 8:00pm
Adam’s Mark Hotel
Boston University.......................... Plaza Court 4
Brown University ......................... Governor’s Square 9
Cornell University ........................ Governor’s Square 10
State of Florida Universities .......... Governor’s Square 14
IBM ............................................ Governor’s Square 17
Iowa State, University of Minnesota, University of Wisconsin ............ Governor’s Square 10
University of Illinois ..................... Governor’s Square 15
Michigan State University ............. Plaza Court 3
Virginia Tech.............................. Plaza Court 8
Yale University ......................... Plaza Court 1

TOWN MEETING FOR THE NEW NRC STUDY ON NEW MATERIALS SYNTHESIS AND CRYSTAL GROWTH
Tuesday, March 6 • 8:00pm – 9:00pm
Adam’s Mark Hotel • Plaza Court 2

FOCUS GROUP DISCUSSION OF THE CMMP 2010 INTERIM REPORT
Tuesday, March 6 • 8:00pm-9:00pm
Adam’s Mark Hotel • Plaza Court 5

RSI EDITORIAL BOARD MEETING
Wednesday, March 7 • 12:00n – 2:00pm
Adam’s Mark Hotel • Plaza Court 6

THE CURRENT AND EMERGING OPPORTUNITIES AT DEPARTMENT OF ENERGY - BASIC ENERGY SCIENCES
Wednesday, March 7 • 4:00pm – 5:00pm
Convention Center • Room 405

CURRENT AND EMERGING OPPORTUNITIES AT NSF
Wednesday, March 7 • 5:00pm – 7:00pm
Convention Center • Room 404
Speaker: W. Lance Haworth, Acting Division Director of Division of Materials Research

EDITORIAL BOARD MEETING OF THE JOURNAL OF POLYMER SCIENCE PART B: POLYMER PHYSICS
Wednesday, March 7 • 6:00pm – 8:00pm
Adam’s Mark Hotel • Governor’s Square 10
STUDENTS LUNCH WITH THE EXPERTS

Wednesday, March 7 • 1:00pm – 2:30pm  
Convention Center • Four Seasons Ballroom I

Students can sign up on-site to enjoy complimentary box-lunch while participating in an informal discussion with an expert on a topic of interest to them. Topics are listed below. Sign-up will take place beginning on Monday, March 5 at 1:00pm in Lobby F near the APS registration desk, and will be on a first-come, first-served basis. Attendance is limited to eight students per topic/expert. You must show your ticket and badge at the door, and sit at the table for which you have a ticket.

1. **Jeff Lynn**  
   NIST  
   Highly Correlated Electrons: Cuprate Superconductors, Colossal MagnetoResistance Oxides, & Multiferroics  
   Sponsored by DMP

2. **Vasili Perebeinos**  
   IBM  
   Optoelectronics with Carbon Nanotubes  
   Sponsored by DMP

3. **Joseph Heremans**  
   The Ohio State University  
   At the Boundary between Physics and Engineering: Energy Conversion Devices  
   Sponsored by FIAP

4. **George Crabtree**  
   Argonne National Laboratory  
   Energy  
   Sponsored by DCMP

5. **Allen Goldman**  
   University of Minnesota  
   Superconductivity  
   Sponsored by DCMP

6. **David Weitz**  
   Harvard University  
   Soft Condensed Matter & Biophysics  
   Sponsored by DCMP

7. **Joe Thompson**  
   Los Alamos National Laboratory  
   Heavy Fermions  
   Sponsored by DCMP

8. **Erica Carlson**  
   Purdue University  
   Stripes in High-Temperature Superconductors  
   Sponsored by DCMP

9. **John Sarrao**  
   Los Alamos National Laboratory  
   Opportunities in Superconductivity Research or Actinide Materials Research  
   Sponsored by DCMP

10. **James Duffy**  
    University of Florida  
    Granular Fluids or Nonequilibrium Statistical Mechanics  
    Sponsored by DCMP

11. **Antonio Castro-Neto**  
    Boston University  
    Graphene/Graphite  
    Sponsored by DCMP

12. **Gregory Fiete**  
    California Institute of Technology  
    The spin-incoherent Luttinger liquid and strong interaction effects in 1-d  
    Sponsored by DCMP

13. **Julia Phillips**  
    Sandia National Laboratories  
    Nanoscience  
    Sponsored by DCMP

14. **Alan Middleton**  
    Syracuse University  
    Condensed Matter, Statistical Mechanics, and Computation: Skills, Algorithms for Physics, and Physics of Algorithms  
    Sponsored by GSNP

15. **Bill Butler**  
    University of Alabama  
    The Physics of Magnetic Information Storage  
    Sponsored by GMAG

16. **Richard Slusher**  
    Bell Labs, Alcatel-Lucent  
    What’s Actually Required to Make a Quantum Computer?  
    Sponsored by GQI

17. **Bill Wootters**  
    Williams College  
    Doing Theoretical Physics at a Liberal Arts College  
    Sponsored by GQI

18. **Robert Ecke**  
    Los Alamos National Laboratory  
    Interdisciplinary Science at National Laboratories: What’s the Future?  
    Sponsored by DFD

19. **Jerry Gollub**  
    Haverford College  
    Research in Fluids and Soft Matter: Teaching in Colleges  
    Sponsored by DFD

20. **Eric Dufresne**  
    Yale University  
    Soft Condensed Matter & Biological Physics  
    Sponsored by DFD
PRIZES AND AWARDS

Award Session (Session E1)
Monday, March 5 • 5:45pm – 6:45pm
Convention Center, Room 406/407

DAVID ADLER LECTURESHIP AWARD
Session D3
Samuel D. Bader
Argonne National Laboratory

For spirited lectures, writing and experimental research in the area of nanomagnetism, magnetic films, multilayers and surfaces of metallic systems, including championing the surface magneto-optic Kerr effect approach.

JOHN DILLON MEDAL
Session L24
Darrin J. Pochan
University of Delaware

For advancing our understanding of the physics of assembly and chain conformation of synthetic polypeptides.

EXCELLENCE IN PHYSICS EDUCATION AWARD
Session L7
John G. King
Uri Haber-Schaim

(photos unavailable)
for the Physical Science Study Committee

For the revitalization of subject matter through the involvement of teachers and researchers at all levels, the elevation of the instructional role of the laboratory, the development and utilization of innovative instructional media, and the emphasis on discipline-centered inquiry and the nature of physics, PSSC Physics has had a major and ongoing influence on physics education at the national level.

LE ROY APKER AWARD (2006)
Session L4
Hugh O. Churchill
Oberlin College
Low-temperature infrared spectroscopy of H₂ in solid C₆₀

Huanqian Loh
Massachusetts Institute of Technology
Applications of Correlated Photon Pairs: Sub-Shot Noise Interferometry and Entanglement.

OLIVER BUCKLEY PRIZE
Session H1
James P. Eisenstein
California Institute of Technology
Steve M. Girvin
Yale University
Allan H. MacDonald
University of Texas, Austin

For fundamental experimental and theoretical research on correlated many-electron states in low dimensional systems.

KEITHLEY AWARD
Session W6
Kent D. Irwin
National Institute of Standards and Technology, Boulder

For the development of SQUID multiplexers used in large-format arrays of superconducting transition-edge sensors that have impacted such fields as particle physics, astronomy, materials analysis, cosmology, and nuclear physics.

IRVING LANGMUIR PRIZE
Session J2
Gabor Somorjai
University of California, Berkeley

For his pioneering research in surface chemistry and delineation of catalytic mechanisms.

DAVISSON-GERMER PRIZE
Session H1
Franz Himpsel
University of Wisconsin

For pioneering investigations of the electronic structure of surfaces, interfaces, adsorbates, and nanostructures.

NICHOLAS METROPOLIS AWARD
Session J2
Chengkun Huang
University of California, Los Angeles

For his innovative work in plasma physics that led to the development of the QuickPIC code that has revolutionized the simulation of plasma-based accelerator research.
PRIZES AND AWARDS

JAMES MCGRODDY PRIZE
Session D3
Arthur J. Epstein
Ohio State University

Joel S. Miller
University of Utah

For discovery and characterization of organic-based magnets, and for their observation and study of predictable and previously unknown magnetic phenomena in these fascinating materials leading to fundamentally new science and the demonstrated potential for creative new technologies.

NICHOLSON MEDAL (2006)
Session J2
Shlomo Havlin
Bar-Ilan University

For his most generous sharing of good ideas with Ph.D. students and young colleagues from 30 countries that has enabled them to achieve important discoveries and develop into highly successful scientists.

LARS ONSAGER PRIZE
Session D3
A. Brooks Harris
University of Pennsylvania

For his many contributions to the statistical physics of random systems, including the formulation of the Harris criterion, which has led to numerous insights into a variety of disordered systems.

GEO 托GE PAKE PRIZE
Session D5
Mark Kryder
Seagate University

For his leadership and research in high-density magnetic and magneto-optic data and storage.

EARLE PLYLER PRIZE
Session J2
Timothy S. Zwier
Purdue University

For the design and implementation of multiple resonance methods that elucidate the potential energy landscapes of flexible biomimetic molecules and their hydrates by optical control of isomer populations.

POLYMER PRIZE
Session H2
Glenn Fredrickson
University of California, Santa Barbara

For insightful and predictive theories regarding the thermodynamics and dynamics of macromolecular systems.

PRIZE TO A FACULTY MEMBER FOR RESEARCH IN AN UNDERGRADUATE INSTITUTION
Session L4
William K. Wootters
Williams College

For his pioneering work on quantum teleportation, his widely cited contributions to quantum information theory, and his prolific engagement of undergraduate students in this research at the foundation of quantum mechanics.

ANEESUR RAHMAN PRIZE
Session J2
Daniel Frenkel
Amsterdam Center for Computational Science

For groundbreaking contributions to computational physics through the development of novel methodologies and algorithms to probe soft matter systems, thereby providing understanding of their diverse behaviors.

GEOGE VALLEY PRIZE
Session L4
Irfan Siddiqi
University of California, Berkeley

For the development of the Josephson bifurcation amplifier for ultrasensitive measurements at the quantum limit.

JOHN WHEATLEY AWARD
Session L4
F. Bary Malik
Southern Illinois University

For his extensive contributions to developing physics and inspiring physicists in emerging nations through insightful personal collaboration, continuing education of graduate students, creation of research centers and groups in developing countries, organization of international meetings and attracting resources in the USA and internationally to sustain all these activities for over thirty years.
FOCUS SESSIONS

**DAMOP**
A32  Focus Session: Rotating Quantum Gases  
D32  Focus Session: Fermi Gases with Unequal Spin Populations or Masses  
L32  Focus Session: BEC/BCS Crossover  
U32  Focus Session: Novel Phases in Quantum Gases

**DBP**
D35  Focus Session: Biological Networks  
H25  Focus Session: Medical Radiation Biology  
L34  Focus Session: Virus-Inspired Supramolecular Structures  
N34  Focus Session: Brownian Motors in Physics, Chemistry, and Biology  
U34  Focus Session: Non-equilibrium Fluctuations in Biomolecules  
V34  Focus Session: Nonlinear Dynamics of Neuronal Systems  
X35  Focus Session: Nucleic Acid Protein Interaction

**DBP DCP**
N35  Focus Session: Time Resolved Structural Investigations on Protein Folding and Function  
P35  Focus Session: Protein Motion Vibrations to Conformational Changes

**DBP DCP DSNP DPOLY**
P34  Focus Session: Cytoskeletal Dynamics and Cell Migration I  
U35  Focus Session: Cytoskeletal Dynamics and Cell Migration II

**DCOMP**
U21  Focus Session: General Theory: Density Functional Theory and Beyond

**DCP**
A19  Focus Session: New Frontiers in Imaging I  
B19  Focus Session: New Frontiers in Imaging II  
D19  Focus Session: New Frontiers in Imaging III  
H19  Focus Session: New Frontiers in Imaging IV  
H26  Focus Session: Non-adiabatic Molecular Dynamics and Control at Conical Intersections I  
J26  Focus Session: Non-adiabatic Molecular Dynamics and Control at Conical Intersections II  
L26  Focus Session: Non-adiabatic Molecular Dynamics and Control at Conical Intersections III  
N26  Focus Session: Non-adiabatic Molecular Dynamics and Control at Conical Intersections IV  
P26  Focus Session: Electron & Ion Solvation in Clusters & the Condensed Phase I  
S26  Focus Session: Electron & Ion Solvation in Clusters & the Condensed Phase II  
U19  Focus Session: Ultrafast Dynamics using X-rays and Electrons I  
U26  Focus Session: Charge Transport in Nanostructures I  
V19  Focus Session: Ultrafast Dynamics using X-rays and Electrons II  
V26  Focus Session: Charge Transport in Nanostructures II  
W26  Focus Session: Charge Transport in Nanostructures III  
X26  Focus Session: Charge Transport in Nanostructures IV  
Y26  Focus Session: Charge Transport in Nanostructures V

**DCP DBP**
A26  Focus Session: Protein Folding: Theory and Simulations I  
B26  Focus Session: Protein Folding: Theory and Simulations II  
D26  Focus Session: Protein Folding: Theory and Simulations III

**DCP DCOMP**
N19  Focus Session: Frontiers in Electronic Structure Theory III  
P19  Focus Session: Frontiers in Electronic Structure Theory IV

**DFD**
A29  Focus Session: Colloids I  
D29  Focus Session: Colloids II  
J30  Focus Session: Characterizing Spatio-Temporal Complexity in Fluids and Materials  
P29  Focus Session: Granular Flows II  
P30  Focus Session: Rheology and Hydrodynamics of Wormlike Micellar Fluids  
U30  Focus Session: Fluid Dynamics of Animal Motion

**DFD GSNP**
J29  Focus Session: Granular Flows I

**DMP**
A8  Focus Session: Novel Superconductors I: Doping and Impurities in MgB2  
A28  Focus Session: Carbon Nanotube Optics I  
A42  Focus Session: Quantum Size Effects in Metallic Thin Films  
A44  Focus Session: Nanoscale Transport—Wires, Dots, Point Contacts  
B8  Focus Session: Novel Superconductors II: CeCoIn5 and NaxCoO2  
B20  Focus Session: Properties of Ferroelectrics and Relaxors  
B28  Focus Session: Carbon Nanotube Optoelectronics  
B42  Focus Session: Kinetics of Self-Assembly at Surfaces  
B43  Focus Session: Materials for Quantum Information Processing I  
B44  Focus Session: Nanoscale Transport—Molecules I  
D11  Focus Session: Correlated Electron Superlattices  
D20  Focus Session: Ferroelectric and Other Oxides  
D28  Focus Session: Carbon Nanotube Optics II  
D44  Focus Session: Spin and Nonlinear Dynamics in Optical Nanostructures  
H8  Focus Session: Novel Superconductors III: Mostly MgB2  
H11  Focus Session: Multiferroic Heterostructures  
H28  Focus Session: Graphene I  
H44  Focus Session: Optical Properties of Nanocavities and Structured Materials
FOCUS SESSIONS

**J8** Focus Session: Novel Superconductors IV: Intercalated graphites and related

**J28** Focus Session: Carbon Nanotube Optics III

**J42** Focus Session: Metal-Semiconductor Interfaces

**J43** Focus Session: Materials for Quantum Information Processing II

**J44** Focus Session: Optical Properties of Nanocrystals

**L13** Focus Session: Interfacial Ordering

**L28** Focus Session: Carbon Nanotube Optics IV

**L44** Focus Session: Nanoscale Transport—Molecules II

**N8** Focus Session: Novel superconductors V: Borides, Organics and Others

**N28** Focus Session: Graphene II

**N29** Focus Session: Carbon Nanotubes: Synthesis

**N31** Focus Session: Carbon Nanotubes: Sensors and Adsorption

**N42** Focus Session: STM of Surface-Based Nanostructures

**N44** Focus Session: Optical Properties of Nanowires and Nanocrystals

**P8** Focus Session: Novel Superconductors: Miscellaneous Materials

**P28** Focus Session: Graphene III

**P42** Focus Session: Biological and Chemical Self-Assembly at Surfaces

**P43** Focus Session: Materials for Quantum Information Processing III

**P44** Focus Session: Nanoscale Transport—Metals

**S11** Focus Session: Surfaces of Correlated Electron Systems

**S20** Focus Session: Nanoscale Ferroelectrics, Switching, and Domains

**S28** Focus Session: Carbon Nanotubes: Devices

**S44** Focus Session: Optical Properties of Plasmonic Nanostructures

**U8** Focus Session: Superconductivity and Magnetism

**U28** Focus Session: Graphene IV

**U44** Focus Session: Optical Properties of Metallic Nanostructures: Theory

**V20** Focus Session: Superlattices and Oxides on Silicon

**V28** Focus Session: Carbon Nanotubes: Chemistry

**V31** Focus Session: Carbon Nanotubes: Thermal, Mechanical, Adsorption

**V44** Focus Session: Plasmons in Nanoholes, Arrays and Structured Surfaces

**W28** Focus Session: Carbon Nanotubes: Transport and Thin Films

**W29** Focus Session: Graphene V

**W44** Focus Session: Nanoscale Transport—Mostly Quantum Dots

**X8** Focus Session: Novel Superconductors VII: Triplet Pairing and Time Reversal Symmetry Breaking

**X44** Focus Session: Nanoscale Transport—Molecules III

**DMP DCOMP**

**A23** Focus Session: High Pressure I—Earth and Planetary Materials

**A27** Focus Session: Computational Nanoscience I—Methods and Applications

**B23** Focus Session: High Pressure II—Earth and Planetary Materials

**B27** Focus Session: Computational Nanoscience II—Methods and Applications

**D23** Focus Session: High Pressure III—Earth and Planetary Materials

**H27** Focus Session: Computational Nanoscience III—DNA Translocation / Nanopores

**N27** Focus Session: Computational Nanoscience IV—Nanoparticles

**P27** Focus Session: Computational Nanoscience V—Nanotubes

**S27** Focus Session: Computational Nanoscience VI—Nanowires

**U27** Focus Session: Computational Nanoscience VII—Reactions on Surfaces and Nanostructures

**V27** Focus Session: Computational Nanoscience VIII—Nanotransport, Contact and Conduction

**W27** Focus Session: Computational Nanoscience IX—Nanowire, Rods & SAMs

**DMP GMAG**

**A13** Focus Session: Multiferroics I

**B13** Focus Session: Cobaltates and Manganites

**D13** Focus Session: Computational Study of Complex Oxides

**D16** Focus Session: Multiferroics II

**H13** Focus Session: NaCoO2 and AxNiO2

**J13** Focus Session: Multiferroics III

**N13** Focus Session: Multiferroics IV

**P13** Focus Session: High-Tc Cuprates and Nickelates

**P20** Focus Session: Multiferroics and other Functional Materials

**S13** Focus Session: 4d & 5d Transition-Metal Oxides

**U13** Focus Session: Manganites, Titanates, & Vanadates

**V13** Focus Session: Geometrical Frustration

**W13** Focus Session: Thin Films and Superlattices

**X13** Focus Session: Layered Manganites

**Y13** Focus Session: Charge/Orbital Order in Complex Oxides

**Y14** Focus Session: Magnetic Nanostructures II

**DPOLY**

**A24** Focus Session: Particle Dynamics & Organization: Polymer Mediated, Polymer Particles & Anisotropic Particles

**A25** Focus Session: Mechanical Properties, Fracture & Adhesion

**B24** Focus Session: Reversibly Associating Polymers: Theory & Experiments

**B25** Focus Session: Adhesion, Swelling, and Elastic Properties of Thin Polymer Films

**J25** Focus Session: Hybrid Organic, Inorganic Nanomaterials: Synthesis, Assembly

**P25** Focus Session: Dynamics and Structure in Polymer Melts and Glasses
# FOCUS SESSIONS

## DPOLY DBP
- N25  Focus Session: Biopolymers I: Mechanical Properties
- S24  Focus Session: Interaction of Polymers with Biological Structures

## DPOLY DCOMP
- H17  Focus Session: Theory and Simulation—Polyelectrolytes & Brushes
- Y17  Focus Session: Multiscale Modeling in Polymeric Materials

## DPOLY DMP
- B17  Focus Session: Pentacene and Field Effect Transistors
- P24  Focus Session: Organic Heterojunction Photovoltaics

## Fed
- A21  Focus Session: Physics Education Research

## FIAP
- A39  Focus Session: Phase Transitions and Domains in Ferroelectric Nanostructures I
- H39  Focus Session: Phase Transitions and Domains in Ferroelectric Nanostructures II
- N39  Focus Session: Emerging Research Devices and Materials for the Microelectronics Industry I
- S38  Focus Session: Negative Index Materials: Concepts to Applications I
- U39  Focus Session: Emerging Research Devices and Materials for the Microelectronics Industry II
- V39  Focus Session: Negative Differential Resistance I
- W38  Focus Session: Negative Index Materials: Concepts to Applications II
- W39  Focus Session: Negative Differential Resistance II
- X38  Focus Session: Negative Index Materials: Concepts to Applications III
- X39  Focus Session: Physics & Technology of III-V Semiconductors in Infrared & THz Imaging I
- Y38  Focus Session: Emerging Research Devices and Materials for the Microelectronics Industry III
- Y39  Focus Session: Physics & Technology of III-V Semiconductors in Infrared & THz Imaging II

## FIAP DMP
- A43  Focus Session: Physics of Thermoelectric Materials and Phenomena I
- B39  Focus Session: Materials and Applications for Solar Energy I
- D39  Focus Session: Materials and Applications for Solar Energy II
- H43  Focus Session: Physics of Thermoelectric Materials and Phenomena II
- J39  Focus Session: Hydrogen Storage I
- L39  Focus Session: Hydrogen Storage II
- N43  Focus Session: Physics of Thermoelectric Materials and Phenomena III
- P39  Focus Session: Hydrogen Storage III
- S39  Focus Session: Hydrogen Storage IV

## GIMS
- A38  Focus Session: Acoustic and Optical Instrumentation
- H38  Focus Session: X-ray and Neutron Instruments and Sciences I
- J38  Focus Session: X-ray and Neutron Instruments and Sciences II
- L38  Focus Session: Advances in Scanned Probe Microscopy I: Low Temperatures, Manipulation, and Optical Methods I
- N38  Focus Session: Advances in Scanned Probe Microscopy II: Force Methods
- U38  Focus Session: Advances in Scanned Probe Microscopy III: High Frequency and Probe Characterization
- V38  Focus Session: Instrumentation and Metrology for Fundamental Physics

## GIMS DBP
- B38  Focus Session: Bioinstrumentation and Biophotonic Technologies

## GMAG
- A15  Focus Session: Spin Freezing on Frustrating Lattices
- D15  Focus Session: Triangular Lattice Antiferromagnetism
- H16  Focus Session: 2D Quantum Magnetism
- J15  Focus Session: Frustrated 1D Magnetism
- N15  Focus Session: Quantum Dimers and Bose Einstein Condensation
- S15  Focus Session: Magnetism and More on Cornersharing Tetrahedra
- U15  Focus Session: 1D Quantum Magnetism

## GMAG DCOMP DMP
- B16  Focus Session: Spin Transport and Orbital Polarization Effects
- N16  Focus Session: Spin and Magnetization Dynamics
- P15  Focus Session: Current and Magnetization Driven Effects
- W16  Focus Session: Theory of Magnetism: Traditional and Novel Magnets
FOCUS SESSIONS

**GMAG DMP**

B14  Focus Session: Magnetic Nanowires, Nanodots, Multilayers  
H14  Focus Session: Exchange Bias  
J16  Focus Session: Molecular Magnets  
P14  Focus Session: Magnetic Nanostructures I  
W14  Focus Session: Nanomagnetic Oxides

**GMAG DMP FIAP**

A12  Focus Session: Spin Hall Effect  
A14  Focus Session: Spin Dependent Tunneling I  
B12  Focus Session: Spin Injection  
D12  Focus Session: Spin Dynamics and Magnetism in Quantum Dots  
H12  Focus Session: Spin Transport  
J12  Focus Session: Spin Control and Dynamics in Quantum Dots  
J14  Focus Session: Domain Wall Motion and Spin Dynamics  
L12  Focus Session: Magnetic Semiconducting Oxides  
N12  Focus Session: Diluted Magnetic Semiconductors I  
N14  Focus Session: Current Induced Magnetization Dynamics and Spin Transfer  
P12  Focus Session: Spin-Orbit Coupling  
S12  Focus Session: III-Mn-V Ferromagnetic Semiconductors  
S14  Focus Session: Spin Transfer Torque  
U12  Focus Session: Diluted Magnetic Semiconductors II  
U14  Focus Session: Magnetization Dynamics and Half Metals  
V12  Focus Session: Magneto-optics and Spin Dynamics  
W12  Focus Session: Spin Dependent Tunneling II  
X12  Focus Session: Anomalous Hall Effect and Spin Orbit Coupling  
X14  Focus Session: Spin-Polarized Transport  
Y12  Focus Session: Spin Relaxation and Dynamics

**GMAG FIAP**

D14  Focus Session: MRAM and Magnetic Devices  
L14  Focus Session: Patterned and High Anisotropy Films for Data Storage  
V14  Focus Session: High Anisotropy Magnetic Nanoparticles and Composite Materials

**GQI**

B33  Focus Session: Quantum Foundations I  
D33  Focus Session: Quantum Foundations II  
H33  Focus Session: Superconducting Qubits I  
J33  Focus Session: Superconducting Qubits II  
L33  Focus Session: Superconducting Qubits III  
P33  Focus Session: Superconducting Qubits IV

**GQI DAMOP**

A33  Focus Session: Quantum-Limited Measurements  
X33  Focus Session: Quantum Information at the AMO/Condensed-Matter Interface

**GSNP**

A22  Focus Session: Econophysics  
L22  Focus Session: Structure and Dynamics of Complex Networks  
N22  Focus Session: Jamming I  
P22  Focus Session: Social Dynamics and Scaling  
V22  Focus Session: Jamming II

**GSNP DBP**

V15  Focus Session: Nonequilibrium Thermodynamics of Small Systems

**GSNP DFD**

J22  Focus Session: Collective Dynamics of Self-Driven Particles

**GSNP DMP**

D22  Focus Session: Fracture  
U22  Focus Session: Friction  
X22  Focus Session: Deformation and Fracture
CONVENTION CENTER • EXHIBIT HALL F
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. 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 Exhibit Hall F on Monday and Tuesday from 4:00 pm to 5:00 pm.

C1: POSTER SESSION I
Authors in Attendance from 2:00 pm to 5:00 pm
(DPOLY poster session, 11:15 am – 2:15 pm)

1 – 59 .................. Polymers I
60 – 75 .................. Metals
76 – 78 .................. Low Temperature Physics
79 – 115 ................. Statistical and Nonlinear Physics
116 – 179 ............... Magnetism
180 – 207 ............... Superconductivity
208 – 212 ............... Society of Physics Students
213 – 243 ............... Semiconductors
244 – 261 ............... Insulators and Dielectrics

K1: POSTER SESSION II
Authors in Attendance from 2:00 pm to 5:00 pm

1 – 34 .................. Biological Physics
35 – 66 .................. Artificially Structured Materials
67 – 90 .................. Computational Nanoscience, Nanotubes, and Composite Materials
91 – 120 ................. Complex Structured Materials
121 – 149 ............... Surfaces, Interfaces and Thin Films
150 – 165 ............... Quantum Information, Concepts and Computation
166 – 192 ............... Atomic, Molecular and Optical Physics
193 – 206 ............... Physics Education
207 – 244 ............... Fluids & Soft Matter
245 – 265 ............... Theoretical and Computational Physics

R1: POSTER SESSION III
Authors in Attendance from 1:00 pm to 4:00 pm
(DPOLY poster session, 11:15 am – 2:15 pm)

1 – 110 .................. Polymers II
111 – 130 ............... Instrumentation and Measurement
131 – 169 ............... Applications
170 – 189 ............... Phase Transition and Strongly Correlated Systems
190 – 210 ............... Chemical Physics
211 – 339 ............... 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 "Y" 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: B3.004 = 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 20.

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 R1

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 prior to 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 Epitome 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.

GUIDELINES FOR SESSION CHAIRS

• Prior to the session, check the Corrigenda distributed with the Bulletin, as well as 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 Meetings Manager and/or the A-V specialist.

• 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:

  Contributed 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.

• 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.
PROGRAM FORMAT

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 Rooms 331-332. 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 330 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.

UNIT ACRONYMS

DIVISIONS
DAMOP Division of Atomic, Molecular and Optical Physics
DAP Division of Astrophysics
DBP Division of Biological Physics
DCP Division of Chemical Physics
DCMP Division of Condensed Matter Physics
DCOMP Division of Computational Physics
DFD Division of Fluid Dynamics
DLS Division of Laser Science
DMP Division of Materials Physics
DNP Division of Nuclear Physics
DBP Division of the Physics of Beams
DPP Division of Plasma Physics
DPOLY Division of Polymer Physics

FORUMS
FEd Forum on Education in Physics
FGSA Forum on Graduate Student Affairs
FHP Forum on History of Physics
FIAP Forum on Industrial and Applied Physics
FIP Forum on International Physics
FPS Forum on Physics and Society

TOPICAL GROUPS
GFBS Few Body Systems Topical Group
GGR Gravitation Topical Group
GHP Topical Group on Hadronic Physics
GIMS Instrumentation and Measurement Science Topical Group
GMAG Magnetism and Its Applications Topical Group
GPAP Topical Group on Plasma Astrophysics
GSNP Statistical and Non-linear Topical Group
GFC Precision Measurement and Fundamental Constants Topical
GSCCM Shock Compression of Condensed Matter
GQI Quantum Information, Concepts and Computation

COMMITTEES
COM Committee on Minorities
CSWP Committee on the Status of Women in Physics
### Exhibit Hall F:
- **Monday, March 5:** 10:00am–5:00pm
- **Tuesday, March 6:** 10:00am–5:00pm
- **Wednesday, March 7:** 10:00am–4:00pm

The following is a list of exhibitors participating in the March Meeting 2007. Please take time during the meeting to visit the exhibits. You must wear your badge to be admitted to the exhibits.

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<td>Photonics Specta</td>
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<td>Nanomagnetics Instruments</td>
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A&N Corporation ..................................................... #602
www.ancorp.com
A&N Corporation, manufacturer of high vacuum components since 1965, offers researchers and laboratories an extensive line of standard high and ultra high vacuum components, as well as custom valves and process chambers. A&N products are designed to meet or exceed the standards required by industrial and academic users.

Advanced Research Systems, Inc. ......................... #707,705
www.arscryo.com
Designs and manufactures the Pneumatic drive 4K DISPLEX closed cycle and the ultra low vibration HELITRAN open cycle families of cryogenic coolers that operate in the 1.7 to 900K temperature range. ARS integrates the cryostats providing custom interfaces, instrumentation, vacuum shrouds, radiation shields, sample holders, temperature controllers and vacuum systems for each cryocooler.

Advanced Test Equipment Rentals ......................... #1103
www.atecorp.com
Advanced Test Equipment Rentals offers effective solutions on rentals, leases, and sales of leading-edge test, measurement, environmental, and inspection equipment. Our wide selection includes a large inventory of test equipment manufactured by Agilent, Narda, Rodhe & Schwarz, Tektronix, Fluke, Schaffner and more. Visit us at www.atecorp.com or call 800-404-2832.

Agilent Technologies ........................................ #601, 603
www.agilent.com
Agilent, the world’s premier measurement company has acquired Molecular Imaging, the premier manufacturer of Atomic Force Microscope (AFM) and Scanning Probe Microscope (SPM) systems. This portfolio of high-resolution AFM instruments is ideal for nanometer scale measurement while imaging in fluids, air or gases and under controlled temperature and environmental conditions.

AJA International, Inc. ........................................... #801
www.ajaint.com
Products: 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 / Deposition Materials; Microwave, RF and DC Power Supplies; Microwave Components and Plasma Sources; Other Ion/Plasma Sources.

American Institute of Physics ............................... #700,702
www.aip.org
AIP offers Author Select -- an open-access publishing option -- to contributors to any AIP journal. AIP also introduces a new journal -- Biomicrofluidics, and two new free-standing subscription options to JCP Biochemical Physics and Applied Physics Reviews -- content also included in The Journal of Chemical Physics and Journal of Applied Physics respectively.

American Magnetics Inc. .................................... #806
www.americanmagnetics.com
Offers superconducting magnet systems to meet any custom requirement and are available in helium cooled or cryogenic free versions. Our multi-axis MAXES systems are also available in optical cryostat and our systems are configured for use with 3rd party He3 inserts or dilution fridges. AMI also manufactures cryogen free magnet systems for X-ray diffraction application for use at synchrotron facilities and are designed to fit in compact goniometers. AMI routinely manufactures customized magnet systems for beam line applications, resonance spectroscopy & STM applications. Other product offerings include power supplies for superconducting magnets, vapor cooled current leads, liquid helium level instrumentation and cryogenic autofill systems.

American Physical Society ................................. #1001,1003
www.aps.org
The American Physical Society is the publisher of the world’s most prestigious and widely-read physics research journals: Physical Review A, B, C, D, E, Physical Review Letters, Reviews of Modern Physics, PROLA (Physical Review Online Archive), PR-Special Topics-Accelerators and Beams, PR-Special Topics-Physics Education Research and PR Focus.

Amineal Manufacturing Corporation ..................... #1011
www.amineal.com
Amineal 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 shield design and attenuation calculations to 3D modeling, we work with you to provide the design for your specific application. All Amineal fabricated magnetic shields are hydrogen annealed in our in-house heat treat center for maximum shielding properties.

Andeen-Hagerling, Inc. ....................................... #1019
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 tan delta. Capacitance standards are available from 0.1pF to 100+ pF. Standards have a temperature coefficient of 0.1ppm/C, stability of 0.3ppm/year, and are NIST traceable to 2ppm accuracy.

AR Worldwide .................................................... #1115
www.ar-worldwide.com
AR Worldwide RF/Microwave Instrumentation will be exhibiting its new broadband amplifiers, model 800A3 (800 watts, 10kHz–3MHz), for applications that require high voltage and high impedance. The 800A3 drives loads without mismatch by a switchable impedance matching output transformer that can be set to 12.5, 25, 50, 100, 150, 200 and 400 ohms. If higher impedance is required, an external matching transformer is available. For higher power requirements, model 1500A3 provides 1500 watts and the model 5000A3 provides 5000 watts of power over the same frequency range.

Asylum Research .............................................. #522
www.AsylumResearch.com
Featured is the MFP-3D™ AFM with unprecedented precision, accuracy and image clarity with sensorized closed loop operation in all three axes. The system features built in nanolithography and manipulation, advanced 3D rendering, and open software. Our new exclusive Dual AC imaging mode goes beyond phase imaging to measure chemical and mechanical properties.

Attocube Systems AG ....................................... #517,519
www.attocube.com
Attocube systems AG offers a wide range of high-precision nanopositioning systems, easy-to-use scanning probe microscopes and probe stations. Temperatures down to 10 mK, high magnetic fields up to 28 T, and ultra-high vacuum conditions. The nanopositioners solve experimental tasks at the cutting edge.

Blake Industries, Inc. ......................................... #1017
Will be exhibiting the Blake-Huber line of x-ray and synchrotron instruments and accessories, including rotary tables, goniometers, translation stages and Eulerian Cradles.
BOC Edwards ................................................................. #605
www.bocedwards.com

Bruker BioSpin Corporation, EPR Division ..................... #706
www.bruker-biospin.com
Bruker BioSpin Corporation highlights the ELEXYS line of FT-EPR spectrometers featuring Linux workstations. Complementing the EMX Series, the ELEXYS spectrometers provide the ultimate in CW, Pulse-FT-EPR, CW, High Frequency and Pulse ENDOR/Triple instrumentation. The EMX series offers simplicity and reliability for traditional continuous wave EPR.

Cambridge Magnetic Refrigeration .................................. #805
www.cmr.uk.com
CMR will be displaying its mFridge range of general purpose demagnetization refrigerators for hassle free cooling to as low as 30mK. You will be able to talk to our scientists about how ADR technology can benefit your work and discover the full temperature range and convenience of the modular and reliable mFridge family. CMR - Setting new standards in cooling technology.

Cambridge University Press ........................................... #925, 927
www.cambridge.org/us
Stop by the Cambridge University Press booth to receive a 20% discount on the latest in Physics, including Electronic Structure by Richard Martin, Composite Fermions by Jainendra Jain and Condensed Matter Field Theory by Alexander Altland and Ben Simons.

Computing in Science & Engineering (CiSE) .................... #418
www.cise.aip.org
CiSE is a bimonthly magazine that enables scientists and engineers to apply high-end software to their research. The magazine bridges the communications gap between researchers and IT professionals. The magazine is peer-reviewed. Subscriptions are $45/year. Stop by for free back issues, archival CDs, and free pens!

Cryo Industries of America, Inc. ...................................... #1009
www.cryoindustries.com
NEW! The XE102 flow cryostat with breakthrough low LHx consumption, AC Susceptibility with externally electronically balancing coils, CRYO Auto Control 2 software to automate your cryostat, VSM sensitivity levels challenging squids, generator to make your own LN2, CRYOCOOL G2 x-ray diffraction/crystallography systems and Atomic Force (magnetic cantilever) Microscopes(AFM).

Cryoconcept ................................................................. #1109
www.cryoconcept.fr/
Cryoconcept has built up expertise in low temperature physics and dilution refrigerators to the benefit of the end user of reliable technologies in experimental wiring. In partnership with the low temperature laboratory of the CEA (Saclay), we improved the designs of 10mK fridges with the requirements of physicists in mind.

Cryogenic Control Systems, Inc. ................................. #803
www.cryocon.com
Cryogenic Control Systems, Inc. (Cryo-con) is a manufacturer of precision electronic instrumentation for both laboratory and industrial process control applications. Cryo-con offers a full line of cryogenic temperature controllers, monitors, scanners, cryogenic accessories and temperature sensors. We will be introducing several new additions to our thermometry line. Stop by booth # 803 to view our new products.

Cryogeneric Ltd. .......................................................... #830
www.cryogeneric.co.uk
Designs and manufactures high field measurement systems to +18 Tesla for the study of electrical, magnetic or thermal properties of material. This includes magnetic moment, specific heat, Hall effect, Seebeck effect and Resistivity. Also, high field superconducting magnets to + 20 Tesla, Cryogenic Free magnets to +16 Tesla, split pair/optical magnets to + 12 Tesla, ESR/EPR magnet to 16 Tesla, He-3 and Low temperature inserts.

Cryomagnetics, Inc. ..................................................... #606
www.cryomagnetics.com
Cryomagnetics offers a complete superconducting magnet system, related electronic instrumentation, and cryogenic accessory line. New products include our Model 4G Superconducting Magnet Power Supply. Our C-Mag line of cryogen-free superconducting magnet systems includes options for variable temperature and optical access in a compact package. Cryomagnetics is committed to staying at the forefront of superconducting magnet technology and welcomes the opportunity to discuss your requirements.

Cryomech Inc. ............................................................. #506
www.cryomech.com
Cryomech manufactures Gifford McMahon and Pulse tube style cryorefrigerators that are capable of temperatures from 2.8K to 100K in various capacities. We are introducing the Cryomech Liquid Helium Plant which can produce more than 12 liters of liquid helium a day. Our portable Liquid Nitrogen Plants are capable of producing liquid nitrogen directly from the air in most locations around the world

DCA Instruments ........................................................... #505
www.dca.fi
Designs and manufactures a wide range of UHV deposition systems and components. The products includes MBE, UHV sputtering, PLD and UHV cluster tools. These DCA deposition systems are suitable for deposition of thin films of semiconductors, magnetic, oxides, metals under UHV

DongWoo Optron Con, Ltd. ............................................. #526
www.dwoptron.com
Featuring: MonRo imaging monochromator/spectrographs, focal length 150mm to 750mm; Ramboss Confocal Micro Raman Measurement system; Maple Micro/Macro Photoluminescence Mapping system; ComRam-320i Dispersive NIR Raman measurement system; DongWoo is Drawing Wavelength. We are focused on spectroscopy and offering solutions for optical spectroscopy applications.

Dryogenic ................................................................. #807
www.dryogenic.com

Duniway Stockroom Corp ............................................. #510
www.duniway.com
Vacuum Equipment and Supplies, including; Hardware and Supplies: flanges, gaskets, bolts/nuts, valves, leak detectors, supplies (oils, greases, hoses, bell jars); Vacuum Pumps: ion pumps/controls, mechanical pumps/rebuild kits, diffusion pumps; turbo pumps; Vacuum Gauges: controls, sensors, cables. Equipment rebuilding services and reconditioned equipment. Free 2007 Catalog.
Dynaflow, Inc. ................................................................. #1024
www.dynaflow-inc.com

Presenting the ABS Acoustic Bubble Spectrometer®© and software products. The ABS is an acoustics based instrument that measures bubble size distributions and void fractions in liquids. 3DYNAFS© allows simulation of nonlinear free surface problems such as bubble dynamics, underwater explosion, ship wave hydrodynamics, and fluid structure interactions.

Easylab Technologies LTD ........................................... #630
www.easylab.co.uk

Provides high-pressure cells, such as: High & Low Temperature Diacell Diamond Anvil Cells for Optical and X-Ray Applications; Conventional Piston-Cylinder High Pressure Cells for Magnetic and Electrical Applications; High-Pressure Cells for Biological Applications; spares and accessories for Diacell DACs (including anvils) and Piston-Cylinder Cells.

Elsevier ....................................................................... #924,926
www.elsevier.com

RIACS has been organized by the Institute of Physics (IOP) Publishing, a not-for-profit society publisher, will be displaying all of our world-class journals, including the prestigious Journal of Physics series. Stop by booth #928 for a free demo of our award winning electronic journals service and to see what’s new in 2007. Free sample issues and unique give-aways will be available.

GMW Associates .......................................................... #1015
www.gmw.com

Laboratory Electromagnet Systems with power supply, field measurement and control, computer interface options. Applications to sensor calibration, device development, biological studies, EPR, FMR and NMR Spectroscopy, magnetic processing and magnetic separation. Field measurement Instrumentation: 1- and 3-component Fluxgates for low fields, 1- and 3-component Hall Analog Transducers and Digital Teslalometer for control and mapping, NMR Teslalometers for very high resolution and accuracy.

Hamamatsu Corporation ............................................. #504
www.sales.hamamatsu.com

A leading manufacturer of devices for generation and measurement of visible, ultraviolet, and infrared light. Hamamatsu's unique corporate philosophy stresses the advancement of photonics through extensive research, and yields products regarded as state of the art.

Hinds Instruments, Inc. ............................................... #604
www.hindsinstruments.com

With over 35 years of polarization modulation experience, Hinds Instrument’s Photoelastic Modulators (PEMs) are proven tools for laboratory and research applications. PEMs operate on principles of resonance (20-84 kHz), require low power, and have no moving parts. The Hinds family of products includes modulators, optical choppers, Stokes polarimeters, and birefringence measurement systems.

ICEoxford ................................................................. #502
www.iceoxford.com

Offers standard and tailor-made superconducting and cryogenic solutions. We design and manufacture cryogenic systems from liquid nitrogen temperatures down to <7 mK in liquid Helium cooled and cryogen free configurations. We will be exhibiting our standard dilution unit system and various 3He system inserts through our collaboration with Scientific Magnetics. Whether you require a simple a bath cryostat or a system with new or unusual features, you should be talking to us.

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Over the years, The Scanning Probe Image Processor, SPIP™ has become the de-facto standard for image processing at nanoscale. SPIP™ is a modular software package offered as a basic module and 14 optional add-ons dedicated to specific purposes. SPIP™ is used for various purposes including Semiconductor Inspection, Physics, Chemistry, Biology, Metrology, and Nano Technology.

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J.A. Woollam Co., Inc .................................................. #508
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The J.A. Woollam Company was founded in 1987 by Dr. John Woollam and since has risen to be a world leader in spectroscopic ellipsometry. We currently offer a wide range of spectroscopic ellipsometers for all types of applications: research and development, process qualification, in-line monitoring, and more.

Janis Research Company, Inc. ................................. #906
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Johnsen Ultravac ....................................................... #520
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Manufactures a complete line of ultra high vacuum products for material, nano and low temperature research including 6-axis manipulators with 10K cooling and 1,300K heating, linear translators with 72inch Z-motion, -11 Torr vacuum chambers; 80K Blackbodies; Beam line components, Monochromators; Plasma Spray and other deposition systems for Semiconductor, Nano and Photonics industry.

Keithley Instruments .................................................. #1006
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Lake Shore Cryotronics, Inc. .......................................... #901, 903
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Stop by to see our Model TTP4 micro-manipulated probe station and to learn more about our full line of cryogenic, magnet-based, load-lock, and high vacuum probe stations. Also on display will be our new Model 325 2-channel temperature controller and our Model 475 gausmeter, the only gausmeter with a built-in field control algorithm. Our knowledgeable staff will be on hand to discuss your research requirements.

Lambda Americas ........................................................... #501
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Genesys programmable AC/DC power: 750W to 3.3kW, Outputs 7.5 to 600VDC, current to 400A. Worldwide Inputs, Active PFC assures operation in difficult AC environments. RS-232/485 Standard. Advanced Parallel Operation - four like units in parallel for 13.2kW. Common family controls. Flexible, reliable power for critical test systems in research and development laboratories.

MacKichan Software ...................................................... #900
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Scientific WorkPlace 5.5 simplifies writing, sharing, and doing mathematics. A click of a button allows you to typeset in LaTeX. The integrated computer algebra system lets you solve and plot equations; animate 2D and 3D plots; rotate, move, and fly through 3D plots; create 3D implicit plots; and more.

Mad City Labs, Inc. ....................................................... #600
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Minus K Technology ..................................................... #1116
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NanoAndMore USA ....................................................... #518
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NanoAndMore USA is the North American distributor of NANOSENSORS, NanoWorld and BudgetSensors AFM probes. NAM is also the exclusive distributor for Lyncee tec’s Digital Holographic Microscope (real time nanoscopic 3-D imaging) and NanoSight’s Nanoparticle Size Analyzer (all particles sizes are tracked which creates a complete distribution graph).

Nanomagnetics Instruments ........................................... #607
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Nanonics Imaging Ltd ..................................................... #1111
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Ultimate resolution AFM/NSOM/SPM systems including the first multiple probe SPM system. Hallmarked by free optical and electron/ion beam axis integration with confocal, microRaman, SEM’s, TEM’s, FIB’s, 10^5K operation. Exposed AFM probes/tips surpassing nanotube profiling with deep trench capabilities, nanowire glass insulated electrical probes, Nanoheater™ thermal conductivity, electrochemical, gas & liquid nanochemical deposition.

Nanotec Electronica S.L. ................................................... #430
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Nanotec Electrónica develops Scanning Probe Microscopes (SPM) with the best quality and the latest technology in the field, providing both scientific and industrial communities easy access to the nanometer scale. Nanotec Electrónica also designs and manufactures control systems for Scanning Probe Microscopes and WSxM Software.

Nanoworld AG ............................................................. #518
www.nanoworld.com
The NanoWorld Holding AG is a purely financial holding company and does not conduct operational business. The present key activities of the associated companies are concentrated on the development, production and commercialization of consumables for Atomic Force Microscopes (AFM) namely AFM probes or tips for Scanning Probe Microscopes (SPM). In 2005 NanoAndMore USA Corp. (NAM) was founded by NanoWorld Holding AG
The National Research Council of the National Academies offers awards for independent postdoctoral and senior scientific research in physics to be conducted at participating U.S. government laboratories. Awards include generous stipend, relocation, professional travel and health insurance. Deadline dates and application instructions are at www.national-academies.org/rap. Applications must be submitted online.

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provide price-competitive, short lead-time manufacturing along with the most advanced photonic instruments.

Princeton University Press ..............................................#728
www.pup.princeton.edu
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