



MRS Meeting Scene...

Presented by the Materials Research Society



2011 MRS Fall Meeting

A Publication of the
Materials Research Society
Advancing materials. Improving the quality of life.

Boston, MA
November 27 - December 2

MEETING PREVIEW



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Bringing you the very best of MRS!

The 2011 Materials Research Society (MRS) Fall Meeting will be held in Boston from November 28-December 2. The Chairs, Cammy R. Abernathy (University of Florida), Paul V. Braun (University of Illinois-Urbana), Masashi Kawasaki (University of Tokyo), and Kathryn J. Wahl (Naval Research Laboratory), have compiled an outstanding program of 47 technical symposia, broadly divided into the areas of Energy and the Environment, Functional Materials, Nanomaterials, Biomaterials, and Materials Exploration.

During the meeting, we will be sending you a summary of highlights from the preceding day. The Plenary Session, the Awards Ceremony, the Von Hippel talk, the Medalist talk, the Turnbull Lecture, the Kavli Lecture, the exhibit, tutorials, symposium X - Frontiers of Materials Research, poster awards, Science as Art competition, a sampling of exciting technical talks, and much, much more. We preview some of the anticipated highlights below.



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MEETING PREVIEW


- [Technical Program](#)
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- [Plenary and Awards Sessions](#)
- [Special Events](#)
- [The Exhibit](#)

[MRS Meetings Blog](#)



The MRS Meeting Experience

View the MRS Fall Meeting through the eyes of our student bloggers and reporters. A glimpse of the Meeting as you have never seen it before!

[2011 MRS Fall Meeting Facebook Group](#) 

Connect with your fellow 2011 MRS Fall Meeting attendees in the [Fall Meeting Facebook Group](#). Discuss talks and events, get the scoop on local dining and entertainment options, post pictures, and more.



National
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AMS, MeV implant
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Join in the conversation!

Other Links of Interest

- [Itinerary Planner](#)
- [2011 MRS Fall Meeting Author Index](#)
- [Submission of Proceedings Papers](#)
- [Career Center](#)

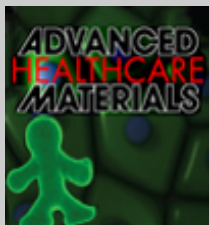


MMR Technologies
Microcryogenic and
Thermal Stage Systems
Visit MRS Booth 1003

■ Meeting Chairs



Cammy R. Abernathy (University of Florida) (left),
Paul V. Braun (University of Illinois-Urbana) (right)



Wiley
New journal:
Advanced Healthcare Materials
Visit MRS Booth 114



Masashi Kawasaki (University of Tokyo) (left),
Kathryn J. Wahl (Naval Research Laboratory) (right)



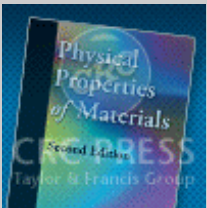
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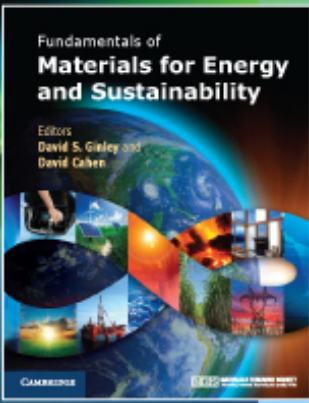


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**Whitaker International
Program**
Biomedical Engineering Grants
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JUST PUBLISHED!



**Fundamentals of
Materials for Energy
and Sustainability**
Editors
David S. Ginley and
David Cahen

ISBN: 978 1107000230

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AT MRS PUBLICATIONS SALES**
Hynes Convention Center, Level 2
\$79.00 Member/Meeting Price
Editors: **David S. Ginley** and **David Cahen**

A unique, interdisciplinary TEXTBOOK with contributions from more than 100 experts in energy and the environment from around the world.

Sections include:

- Energy and the Environment—The Global Landscape
- Nonrenewable Energy Sources
- Renewable Energy Sources
- Transportation
- Energy Efficiency
- Energy Storage, High-Penetration Renewables and Grid Stabilization

Published in partnership by the Materials Research Society
and Cambridge University Press

www.mrs.org/energybook

TECHNICAL PROGRAM

■ Technical Program

Technical sessions include a core of 47 technical symposia in six topical clusters:

ENERGY AND THE ENVIRONMENT

- **Symposium A:** Material Challenges in Current and Future Nuclear Technologies
- **Symposium B:** Advanced Materials for Fuel Cells
- **Symposium C:** *In Situ* Studies of Solid-Oxide Fuel-Cell Materials
- **Symposium D:** Sustainable Synthesis of Nanomaterials
- **Symposium E:** Advanced Materials for Solar-Fuel Generation
- **Symposium F:** Mobile Energy
- **Symposium G:** Applications of Hierarchical 3D Structures
- **Symposium H:** Organic Photovoltaic Devices and Processing
- **Symposium I:** Fundamental Processes of Solar Harvesting in Excitonic Solar Cells
- **Symposium J:** Photonic and Plasmonic Materials for Enhanced Photovoltaic Performance
- **Symposium K:** Materials for High-Performance Photonics

FUNCTIONAL MATERIALS

- **Symposium L:** Topological Insulator Materials
- **Symposium M:** Oxide Semiconductors—Defects, Growth, and Device Fabrication
- **Symposium N:** Diamond Electronics and Biotechnology: Fundamentals to Applications V
- **Symposium O:** Compound Semiconductors for Generating, Emitting, and Manipulating Energy
- **Symposium P:** Ferroelectric and Multiferroic Materials
- **Symposium Q:** Magnetoelectric Composites
- **Symposium R:** Compliant Electronics and Photonics
- **Symposium S:** Solution Processing of Inorganic and Hybrid Materials for Electronics and Photonics
- **Symposium T:** Large-Area Processing and Patterning for Active Optical and Electronic



CRAIC Technologies
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microscopic sample areas
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Attolight AG
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Hamamatsu
Corporation
Absolute Quantum Yield
Measurement System
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KP Technology
Scanning Kelvin
Probe Photovoltage Spectroscopy
Visit MRS Booth 829

Devices III

- [Symposium U](#): Charge Generation/Transport in Organic Semiconductor Materials
- [Symposium V](#): Multifunctional Polymer-based Materials
- [Symposium W](#): Phonons in Nanomaterials—Theory, Experiments, and Applications
- [Symposium Y](#): Advances in Energetic Materials Research

NANOMATERIALS

- [Symposium Z](#): Functional Metal-Oxide Nanostructures
- [Symposium AA](#): Carbon Nanotubes, Graphene, and Related Nanostructures
- [Symposium BB](#): Functional Nanowires and Nanotubes
- [Symposium CC](#): Functional Semiconductor Nanocrystals and Metal-Hybrid Structures
- [Symposium DD](#): Transport Properties in Polymer Nanocomposites II
- [Symposium EE](#): Self Organization and Nanoscale Pattern Formation
- [Symposium FF](#): Mechanical Nanofabrication, Nanopatterning, and Nanoassembly
- [Symposium GG](#): Safety and Toxicity Control of Nanomaterials

BIOMATERIALS

- [Symposium HH](#): Bioelectronics—Materials, Properties, and Applications
- [Symposium II](#): BioMEMS—Materials and Devices
- [Symposium JJ](#): Nanofunctional Materials, Nanostructures, and Nanodevices for Cancer Applications
- [Symposium KK](#): Biomaterials for Tissue Regeneration
- [Symposium LL](#): Synthetic and Biological Gels
- [Symposium MM](#): Micro- and Nanoscale Processing of Biomedical Materials
- [Symposium NN](#): Nucleation and Growth of Biological and Biomimetic Materials
- [Symposium OO](#): Multiscale Mechanics of Hierarchical Materials

MATERIALS EXPLORATION

- [Symposium PP](#): Three-Dimensional Tomography of Materials
- [Symposium QQ](#): Functional Imaging of Materials—Advances in Multifrequency and Multispectral Scanning Probe Microscopy and Analysis
- [Symposium RR](#): Dynamics in Confined Systems and Functional Interfaces
- [Symposium SS](#): Properties and Processes at the Nanoscale—Nanomechanics of Material Behavior
- [Symposium TT](#): Microelectromechanical Systems—Materials and Devices V
- [Symposium UU](#): Combinatorial and High-throughput Methods in Materials Science

GENERAL

- [Symposium X](#): Frontiers of Materials Research

[Abstracts](#) for all talks are also available.

■ SUPER SUNDAY

Don't miss these exciting events on Sunday, November 28.

- [7 Tutorial Sessions](#)

Thermo
SCIENTIFIC

Visit MRS Booth 416

- [Acta Materialia Materials and Society Award Forum—Vehicle Electrification](#)
- [Mastering Science Presentations Workshop](#)
- [Making the Most of Broadcast Media Workshop](#)
- [Effective Time Management for the New Millennium Workshop \(advance registration required\)](#)
- [Careers in Academia Workshop \(advance registration required\)](#)
- [Fred Kavli Distinguished Lectureship in Nanoscience](#)

■ [Symposium X - Frontiers of Materials Research](#)



"Materials Genome Initiative"

Harriet Kung, Ph.D., Director, Basic Energy Sciences, U.S. Department of Energy,
Ian Robertson, Ph.D., Director, Division of Materials Research, National Science Foundation,

Cyrus Wadia, Ph.D., Assistant Director, Clean Energy & Materials, R&D White House Office of Science and Technology Policy
(Monday, 12:15 p.m.)

"eXtremes of Heat Conduction—Pushing the Boundaries of the Thermal Conductivity of Materials"

David G. Cahill

University of Illinois at Urbana-Champaign
(Tuesday, 12:15 p.m.)

"Semiconductor Nanowires for Solar Energy Conversion"

Peidong Yang

University of California, Berkeley
(Wednesday, 12:05 p.m.)

"From Nanogenerators to Piezotronics-A Decade Study of ZnO Nanostructures"

Z.L. Wang

Georgia Institute of Technology
(Wednesday, 12:45 p.m.)

"Sahara Solar Breeder Plans: Look Forward to Sustainable Future Energy from Deserts "

Hideomi Koinuma

Tokyo University, Japan/Pusan National University, Korea
(Thursday, 12:15 p.m.)

■ [The Exhibit](#)



Be sure to visit the Exhibit Hall, Tuesday through Thursday. In addition to 250 international exhibitors, the Exhibit Hall features materials²—the place to be for the Science as Art competition, caricature sketching, ice cream treats on Tuesday and the Wednesday Wine & Cheese Happy Hour Reception.

Location

Hynes Convention Center (Level 2)
900 Boylston Street
Boston, MA 02115

Exhibit Hours

Tuesday, November 29: 11 am - 5:30 pm
Wednesday, November 30: 11 am - 6 pm
Thursday, December 1: 10 am - 1:30 pm

Events in the Exhibit Hall

Ice Cream Social & Hands-on Science Activities

Enjoy a tasty treat at the refreshment break on Tuesday at 2:30 pm as national science centers and science museums in partnership with the NISE Network present educational hands-on science activities.

Cleaning our Water with Nanotechnology Stage Performance

Join us on Wednesday at 2:30 pm as Karine Thate, Museum of Science Boston, talks about our drinking water and how we can make contaminated water safe to drink.

***Wine & Cheese Happy Hour Reception & Hands-on Science Activities**

Wrap up your day on Wednesday by joining friends and colleagues for a Wine & Cheese Happy Hour Reception from 5:00 to 6:00 pm, including educational hands-on activities in materials science and nanotechnology.

Science as Art Exhibition

Vote for your favorite image at the ever-popular science as art competition, highlighting the interplay between art and science.

Caricature Sketches

Stop by materials² Tuesday through Thursday and have your caricature drawn by author and award-winning cartoon artist Angie Jordan.

Career Center

The Career Center provides employers a chance to meet their next employee, and job seekers a chance to meet their next employer.



■ Tutorials

The 2011 MRS Fall Meeting will feature 7 tutorials covering a variety of topics to complement the scientific sessions. The tutorials are free of charge to all meeting attendees.

Tutorial H/I: Organic Photovoltaics—Current Challenges and Opportunities

Sunday, November 27, 8:30 am-5:00 pm
Room 210, Hynes Convention Center

Tutorial P: Fundamental Properties of Ferroelectric and Multiferroic Materials—Experimental and Theoretical Concepts

Sunday, November 27, 1:30 pm-5:00 pm
Room 202, Hynes Convention Center

Tutorial U: Organic Semiconductor Crystals 101

Sunday, November 27, 9:00 am-5:00 pm
Room 206, Hynes Convention Center

Tutorial Z: Controlled Synthesis and Device Integration of Functional Metal Oxide Nanostructures

Sunday, November 27, 9:00 am-5:00 pm
Room 203, Hynes Convention Center

Tutorial BB: Semiconductor Nanowires for Photovoltaics

Sunday, November 27, 1:30 pm-5:00 pm
Room 200, Hynes Convention Center

Tutorial PP: 3D Imaging of Materials Microstructures in Different Length Scales

Sunday, November 27, 1:30 pm-5:00 pm
Room 201, Hynes Convention Center

Tutorial UU: Preparation and Interrogation of Combinatorial Materials Libraries for High-Throughput Materials Science

Sunday, November 27, 9:00 am-5:00 pm
Room 204, Hynes Convention Center

PLENARY AND AWARDS SESSIONS

■ Plenary Session



Eric J. Amis
 United Technologies Research Center
Monday, November 28, 6:30 pm
 Grand Ballroom, Sheraton Hotel
 "Three Materials, Three Challenges"

The ultimate goal of materials research is to provide tangible benefits to society. Regardless of whether materials researchers work in academic, government, or industrial laboratories, this goal provides key underlying motivation. Materials scientists and engineers enable technologies that address global needs, though our talents, scope, and success measures vary. An integrated approach is inherent to interdisciplinary materials research. This talk will consider examples of representative materials (with tangible benefits) and challenges (to enable technologies) with applications in areas of transportation, energy, and infrastructure, and within the DNA of corporate research.

■ Von Hippel Award Talk



A. Paul Alivisatos
 Lawrence Berkeley National Laboratory/University of California, Berkeley
Wednesday, November 30, 6:30 pm
 Grand Ballroom, Sheraton Hotel
 "The Emerging Science of Nanocrystals"

Award Citation: "For the development of the fundamental scientific basis for growing and utilizing defect-free colloidal semiconductor nanoparticles, providing the basis for biological imaging, solid state lighting, and the capture and conversion of solar energy to electricity"

This talk will chart the development of a fundamental building block of nanoscience—colloidal inorganic nanocrystals. We will examine fundamental scaling laws for size and shape-dependent properties; the ability to synthesize nanocrystals with controlled composition, topology, and connectivity; the deep applications of artificial nanostructures in biology; the study of nanocrystals at the single particle level; the emergence of collective behavior when nanocrystals are coupled together; and the prospects for nanocrystals to play an important role in energy science and technologies.

■ David Turnbull Lectureship



Phaedon Avouris
IBM T. J. Watson Research Center
Tuesday, November 29, 5:15 pm
Grand Ballroom, Sheraton Hotel
"Graphene -- Applications in Electronics and Optoelectronics"

Award Citation: "For his development of nanoscience and nanotechnology through research, publications, lecturing and mentoring; in particular, for his work on carbon nanotubes, graphene and semiconductor surfaces, imaging and measuring their electronic structure and properties; modifying them chemically and physically using scanning probe techniques; and incorporating them into advanced electronic and photonic devices"

Graphene, a two-dimensional, single-atomic-layer material with linear electron dispersion, has rather unique electrical and optical properties. There is strong interest in taking advantage of these properties in technology. After reviewing some of the intrinsic properties of graphene and how they are affected by environmental interactions, I will discuss how they can be utilized in electronics and optoelectronics. Comparisons will be made with the related material, carbon nanotubes.

I will focus most of the discussion on high-frequency graphene transistors and simple integrated circuits, their operational characteristics and related device physics aspects such as carrier transport, the role of electrical contacts, scaling, quantum effects, and power dissipation. I will also review the key optical properties of graphene and provide examples of how these can be used in optoelectronics applications.

■ Materials Theory Award



Alex Zunger
University of Colorado, Boulder
Wednesday, November 30, 6:30 pm
Sheraton Hotel, Level 2, Grand Ballroom

Award Citation: "For his development of the inverse band structure approach to materials by design and the foundational developments of methods of first-principles theory of solids, leading to innovative and transformative studies of renewable-energy materials and nanostructures."

■ MRS Medal

Two Awardees



Peidong Yang

University of California, Berkeley

Wednesday, November 30, 12:05 - 12:45 pm

Grand Ballroom, Sheraton Hotel

"Semiconductor Nanowires for Solar Energy Conversion"

Award Citation: "For outstanding contributions in the creative synthesis and assembly of semiconductor nanowires and their heterostructures, and innovations in nanowire-based photonics, thermoelectrics, solar energy conversion and nanofluidic applications."

Semiconductor nanowires represent an important class of nanostructure building block for photovoltaics as well as direct solar-to-fuel application, because of their high surface area, tunable bandgap, light-trapping capabilities, and efficient charge transport and collection. The generation of fuels by the direct conversion of solar energy in a fully integrated system is an attractive goal; however, no such system has been demonstrated that shows the required efficiency, is sufficiently durable, or can be manufactured at reasonable cost. It requires major research advancement in the area of semiconductor light absorber and catalyst discovery. One of the most critical issues in solar water splitting is the development of a suitable photo-anode with high efficiency and long-term durability in an aqueous and photo-oxidative environment. Nanowires can be readily designed and synthesized to deterministically incorporate heterojunctions with improved light absorption, charge separation, and vectorial charge transport. High surface-area nanowire arrays can serve as photocathodes and photo-anodes within an artificial photosynthetic system. Meanwhile, it is also possible to selectively decorate different oxidation or reduction catalysts onto specific segments of the nanowires to mimic the compartmentalized reactions in natural photosynthesis. The bottom-up synthetic approach for the semiconductor nanowires also enables several important principles of sustainability in materials and technology development, namely, using earth-abundant elements and using less energy-intensive processes. In this talk, I will highlight several recent examples from this lab, using semiconductor nanowires and their heterostructures for the purpose of solar-to-electricity and solar-to-chemical energy conversion.



Zhong Lin (Z.L.) Wang

Georgia Institute of Technology

Wednesday, November 30, 12:45 - 1:25 pm

Grand Ballroom, Sheraton Hotel

"From Nanogenerators to Piezotronics-A Decade Study of ZnO Nanostructures"

Award Citation: "For seminal contributions in the discovery, controlled synthesis, and fundamental understanding of ZnO nanowires and nanobelts, and the design and fabrication of novel, nanowire-based nanosensors, piezotronic devices, and nanogenerators."

Developing wireless nanodevices and nanosystems is of critical importance for sensing, medical science, environmental/infrastructure monitoring, defense technology, and even personal electronics. It is highly desirable for wireless devices to be self powered without using battery, without which most of the sensor network may be impossible. The piezoelectric nanogenerators that we developed have the potential to serve as self-sufficient power sources for micro-/nanosystems. For wurtzite structures that have non-central symmetry, such as ZnO, GaN and InN, a piezoelectric potential (piezopotential) is created in the crystal by applying a strain. The nanogenerator is invented by using the piezopotential as the driving force for electrons to flow in responding to a dynamic straining of piezoelectric nanowires [1-5]. A gentle straining can produce an output voltage of up to 20-40 V from an integrated nanogenerator. Furthermore, piezopotential

in the wurtzite structure can serve as a “gate” voltage that can effectively tune/control the charge transport across an interface/junction; electronics based on such a mechanism are coined as piezotronics [6-8], with applications in force/pressure triggered/controlled electronic devices, sensors, logic units and memory. By using the piezotronic effect, we show that the optoelectronic devices fabricated using wurtzite materials can give superior performance as solar cell, photon detector, and light-emitting diode [9-11]. Piezotronic is likely to serve as a “mediator” for directly interfacing biomechanical action with silicon-based technology.

■ Fred Kavli Distinguished Lectureship in Nanoscience



Mark E. Davis
 California Institute of Technology
Sunday, November 27, 7 pm
 Grand Ballroom, Sheraton Hotel
 "Fighting Cancer with Nanoparticle Medicines—The Nanoscale Matters"

The Kavli Foundation supports scientific research, honors scientific achievement, and promotes public understanding of scientists and their work. Its particular focuses are astrophysics, nanoscience, and neuroscience. For more information about the Foundation, [visit their Web site](#).

Papyrus writings from 1600-1500 BC describe cancer and the attempts at treatment. Centuries later, cancer remains a devastating disease today. Given the long history of difficulties in developing cancer therapies, why is there excitement about nanoparticle medicine (nanomedicines) for fighting cancer? In this lecture, I will present the current understandings of why these engineered, nanosized medicines that are highly multifunctional chemical systems have the potential to provide game-changing ways to treat cancer. The nanoscale matters. I will illustrate this point by demonstrating how physical insights at the nanoscale allow for the development of nanoparticles that can function as intended in animals and humans. The data from humans will be used to show how we have translated two independent nanoparticle cancer therapeutics from laboratory curiosities to experimental therapeutics in human clinical trials.

■ Graduate Student Awards

The GSA Finalists will give [presentations](#) based on their work in special talk sessions that will begin at 12:00 p.m. on Tuesday, November 29. All finalists will be presented with either Gold or Silver Awards during the Tuesday afternoon, November 29 Special Talk Session. This is a prestigious award for graduate students in materials research, and past awardees have gone on to very successful careers and accomplishments, including MRS President.



SPECIAL EVENTS

■ Town Hall Event—MRS Meetings, The Next Generation

Whether or not you are attending the 2011 MRS Fall Meeting or the Town Hall Event, please take our [online survey](#) to help shape the Meetings of the Future!

November 29, 6:30 pm
Sheraton Hotel, Commonwealth, 3rd Floor

MRS is a dynamic international association with meeting programming that leads the way to technological advancements at an ever-increasing pace. But not one to rest on its laurels, MRS continues to examine the role of its meetings in the rapidly changing and expanding materials landscape.

Please join us for refreshments and an open-forum to discuss how we can:

- Improve our existing meetings
- Utilize new media
- Provide forums for public policy discussion
- Help educate both researchers and the public
- Disseminate technical and non-technical information in the most efficient manner

We invite and encourage you to help us shape the Town Hall Meeting by participating in this short (5 minute) [online survey](#). Your responses will help us shape the Town Hall Meeting to meet your needs.

■ Stage Presentation - Cleaning Our Water With Nanotechnology

Wednesday, November 30, 2:30 - 3:30 pm

Karine Thate
Museum of Science Boston



Created for general public audiences at the Museum of Science Boston, *Cleaning Our Water with Nanotechnology* is a presentation about our drinking water and how we can make contaminated water safe to drink by using a variety of technologies, including three new nanotechnologies for water purification.

During the presentation, audiences consider the following questions:

- Which contaminants do we have in our water that makes it unsafe to drink?
- How do we typically purify our water - and what are the shortcomings/limitations of those technologies?
- How can new nanotechnologies purify our drinking water in new ways to help us in situations where large-scale water treatment isn't appropriate?

■ Women in Materials Science & Engineering Breakfast:

Women in Engineering—A Premier Power Source



Wednesday, November 30, 7 am

Sheraton Boston Hotel, Public Gardens, 5th Floor

Men and women of materials science are invited to attend this discussion and complimentary breakfast.

Guest Speaker: Gwendolyn Boyd

Executive Assistant to the Chief of Staff
Johns Hopkins University

This talk will focus on the extraordinary potential that is inherent in women who are engineers. Issues about access, leadership, opportunities, mentoring, and empowerment will be discussed. Additionally, we will highlight how, as women in engineering, we are still breaking through barriers and reshaping the landscape for the next generation of girls in engineering. We will highlight how we must continue to unhook stereotypes in order to reach our full potential in our own careers. There is great potential and power in each of us, and the question is how to recognize it, acquire it, appreciate it, and use it.

Men and women of materials science are invited to attend this discussion and complimentary breakfast. Advance sign-up required; sign up at MRS Information on the second floor of the Hynes Convention Center by 12:00 noon on Tuesday, November 29.

■ **Research Funding Seminars**

Government Agency Sessions: Materials Research Support

Tuesday, November 29

Department of Energy (DOE)

6 pm - 6:45 pm

Sheraton Hotel, Back Bay B, 2nd Floor

Office of Naval Research (ONR) Global

6:45-7:30 pm
Sheraton Hotel, Back Bay C, 2nd Floor

Defense Advanced Research Projects Agency (DARPA)

7:30-8:15 pm
Sheraton Hotel, Back Bay B, 2nd Floor

Government Agency Sessions: Materials Research Support

Thursday, December 1

National Science Foundation (NSF)

6:00-6:45 pm
Sheraton Hotel, Back Bay B, 2nd Floor

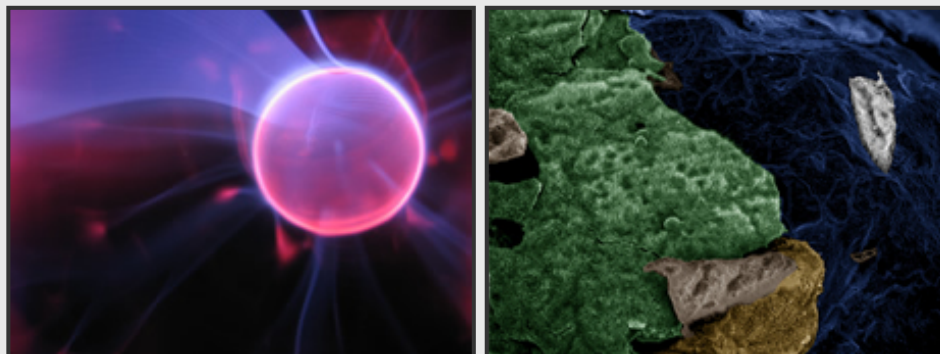
National Institutes of Health (NIH)

6:45-7:30 pm
Sheraton Hotel, Back Bay C, 2nd Floor

Army Research Office (ARO)

7:30-8:15 pm
Sheraton Hotel, Back Bay C, 2nd Floor

■ Science As Art Competition



Visualization methods provide an important tool in materials science for the analysis and presentation of scientific work. Images can often convey information in a way that tables of data or equations cannot match. Occasionally, scientific images transcend their role as a medium for transmitting information, and contain the aesthetic qualities that transform them into objects of beauty and art. As a special feature of the 2011 MRS Fall Meeting in Boston, we are continuing the popular "Science as Art" competition. The competition is open to all registered meeting attendees, with entries to be on display in the Hynes Convention Center. Multiple first-place and second-place awards of \$400 and \$200, respectively, will be presented to the winning entries at the meeting. We invite you to view a number of winning images from [past Science as Art Competitions](#).

■ Career Center

**2011 MRS Fall Meeting Career Center Hours of Operation
Hynes Convention Center Exhibit Hall**

- Monday, November 28 (Candidate Registration Only)
1:00 pm - 4:00 pm

- Tuesday, November 29
11:00 am - 5:30 pm
- Wednesday, November 30
11:00 am - 5:30 pm
- Thursday, December 1
10:00 am - 1:30 pm

Looking for a job? We'll show off your talents to the world's most prestigious high-tech firms, universities and laboratories. At the Career Center, you can access many interesting job postings, visit recruitment booths and interview with prospective employers. Please bring extra copies of your resume for your own use.

The Career Center is FREE of charge to all MRS members and those registered to attend the meeting. Meeting attendees and MRS members may register as job candidates on-site.

■ Student Opportunities

Student Mixer

Monday, November 28 7:30-8:30 pm
Sheraton Boston Hotel, Commonwealth, 3rd Floor

University Chapter Representatives

Wednesday, November 30, 12:00 noon
Sheraton Boston Hotel, Public Garden, 5th Floor

ABOUT THE MEETING SCENE

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