

FALL MEETING & EXHIBIT

November 28-December 2 · Boston, MA



SYMPOSIA

ENERGY AND THE ENVIRONMENT

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

FUNCTIONAL MATERIALS

- L Topological Insulator Materials
- M Oxide Semiconductors—
 Defects, Growth, and Device Fabrication
- N Diamond Electronics and Biotechnology— Fundamentals to Applications V
- O Compound Semiconductors for Generating, Emitting, and Manipulating Energy
- P Ferroelectric and Multiferroic Materials
- Q Magnetoelectric Composites
- R Compliant Electronics and Photonics
- S Solution Processing of Inorganic and Hybrid Materials for Electronics and Photonics
- T Large-Area Processing and Patterning for Active Optical and Electronic Devices III
- U Charge Generation/Transport in Organic Semiconductor Materials
- V Multifunctional Polymer-based Materials
- W Phonons in Nanomaterials— Theory, Experiments, and Applications
- Y Advances in Energetic Materials Research

NANOMATERIALS

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

BIOMATERIALS

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

MATERIALS EXPLORATION

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

2011 MRS Fall Meeting Chairs

Cammy R. Abernathy

University of Florida caber@mse.ufl.edu

Paul V. Braun

University of Illinois-Urbana pbraun@illinois.edu

Masashi Kawasaki

Tohoku University kawasaki@imr.tohoku.ac.jp

Kathryn J. Wahl

Naval Research Laboratory kathryn.wahl@nrl.navy.mil

Don't miss these future MRS Meetings!

2012 MRS Spring Meeting & Exhibit April 9-13, 2012

Moscone West & San Francisco Marriott Marquis San Francisco, California

2012 MRS Fall Meeting & Exhibit November 26-30, 2012

Hynes Convention Center & Sheraton Boston Hotel Boston, Massachusetts



Materials Research Society 506 Keystone Drive

Warrendale, PA 15086-7573

Tel 724.779.3003 Fax 724.779.8313 info@mrs.org www.mrs.org



Peter F. Green University of Michigan, USA

FOUNDING PRINCIPAL EDITORS

Luca Dal Negro

Boston University, USA

Horacio Espinosa Northwestern University, USA

Supratik Guha IBM Research, USA

Dan Hancu GE Global Research, USA

Kristi Kiick University of Delaware, USA

Nicola Marzari

Alberto Salleo

Alec Talin NIST, USA

Nagarajan (Nagy) Valanoor University of New South Wales, Australia



The Materials Research Society (MRS) and Cambridge University Press proudly announce, a new full-color, high-impact journal focused on groundbreaking work across the broad spectrum of materials research.

MRS Communications offers a rapid but rigorous peer-review process and time to publication—an aggressive production schedule will bring your article to online publication and a global audience within a target 14-day process from acceptance.

Major article types for MRS Communications include:

Rapid Communications Ultra-Rapid Communications Prospectives Articles Editorials Commentaries Correspondence

For more information on MRS Communications, please visit www.mrs.org/mrc or e-mail mrc@mrs.org.



CAMBRIDGE UNIVERSITY PRESS

Manuscripts are solicited in the following topical areas, although submissions that succinctly describe groundbreaking work across the broad field of materials research are encouraged.

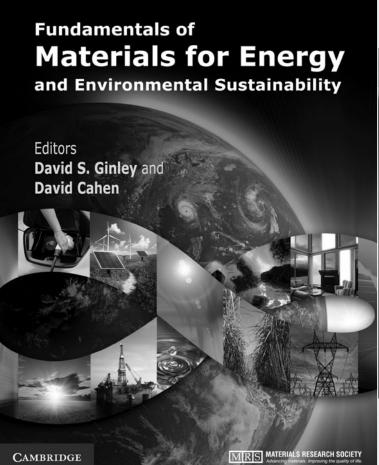
- · Biomaterials and biomimetic materials
- Carbon-based materials
- · Complex oxides and their interfaces
- · Materials for energy storage, conversion and environmental remediation
- Materials for nanophotonics and plasmonic devices
- · Materials theory and computation
- · Mechanical behavior at the nanoscale
- · Nanocrystal growth, structures and properties, including nanowires and nanotubes
- · Nanoscale semiconductors for new electronic and photonic applications
- · New materials synthesis, templating and assembly methods
- · New topics in metals, alloys and transformations
- · Novel and in-situ characterization methods
- Novel catalysts and sensor materials
- · Organic and hybrid functional materials
- Quantum matter
- · Surface, interface and length-scale effects on materials properties

For manuscript submission instructions, please visit www.mrs.org/mrc-instructions.

AVAILABI

Fundamentals of Materials for Energy and Environmental Sustainability

Editors: David S. Ginley and David Cahen





Hardback ISBN: 9781107000230

www.mrs.org/energybook

\$99.00 List Price \$79.00 MRS Member Price Whether you are a student taking an energy course or a newcomer to the field, this book will help you understand critical relationships between the environment, energy and sustainability. Leading experts provide comprehensive coverage of each topic, bringing together diverse subject matter by integrating theory with engaging insights. Each chapter includes helpful features to aid understanding, including a historical overview to provide context, suggested further reading and questions for discussion. Every subject is beautifully illustrated and brought to life with full-color images and color-coded sections for easy browsing, making this a complete educational package.

Sections Include:

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

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

https://doi.org/10.1557/jmr.2011.326 Published online by Cambridge University Press

MATERIALS RESEARCH SOCIETY

2011 Board of Directors

Officers

J.J. De Yoreo, President

D.S. Ginley, Immediate Past President

B.M. Clemens, Vice President and President-Elect

S.J. Hearne, Secretary

M.R. Fitzsimmons, Treasurer

Directors

W. Adams A.C. Arias

T. Benson Tolle C.A. Orme
F. Besenbacher M.F. Rubner

E. Bodenschatz T. Someya
D.B. Dimos S.E. Trolier-McKinstry

O. Kraft

H. Matsumura

J.M. Gibson P. Wiltzius

2011 Publications Committee

P.C. McIntyre, Chair

P.B. Messersmith, Editors Subcommittee

R.M. Wallace, New Publication Products Subcommittee

J.C. Bravman, Publications Quality Subcommittee

2011 MRS Committee Chairs

M.S. Whittingham, *Academic Affairs* J.R. Weertman, *Awards*

A.J. Hurd, Government Affairs

J.W.P. Hsu, International Relations

S. Jasty, Membership

P.C. McIntyre, Publications

G. Zenner Petersen, Public Outreach

M. Aziz. Technical Program

MRS Headquarters

T.M. Osman, Executive Director

J.A. Dillen, Director of Finance and Infrastructure

P.A. Hastings, *Director of Meeting Activities*

E.K. Novak, Director of Publications and Marketing

Journal of Materials Research Founding Sponsors

Allied-Signal Inc. Xerox Corporation

About the Materials Research Society

The Materials Research Society (MRS) is a not-for-profit scientific association founded in 1973 to promote interdisciplinary goal-oriented basic research on materials of technological importance. Membership in the Society includes almost 16,000 scientists from industrial, government, and university research laboratories in the United States and abroad.

The Society's interdisciplinary approach to the exchange of technical information is qualitatively different from that provided by single-discipline professional societies because it promotes technical exchange across the various fields of science affecting materials development. MRS sponsors two major international annual meetings encompassing many topical symposia, as well as numerous single-topic scientific meetings each year. It recognizes professional and technical excellence, conducts tutorials, and fosters technical exchange in various local geographical regions through Section activities and Student Chapters on university campuses.

MRS publishes symposia proceedings, the MRS Bulletin, and other volumes on current scientific developments. The Journal of Materials Research, the archival journal spanning fundamental developments in materials science, is published twenty-four times a year by Cambridge University Press for the MRS.

MRS regular and student members may subscribe to *Journal of Materials Research*. See inside front cover for subscription rates for *Journal of Materials Research*.

MRS is an Affiliated Society of the American Institute of Physics and participates in the international arena of materials research through associations with professional organizations such as the International Union of Materials Research Societies.

For further information on the Society's activities, contact MRS Headquarters, 506 Keystone Drive, Warrendale, PA 15086-7573; telephone (724) 779-3003; fax (724) 779-8313.



A publication of the MIRIS MATERIALS RESEARCH SOCIETY Advancing materials. Improving the quality of life.

Periodical Rate Postage Paid at New York, NY and Additional Mailing Offices

ISSN: 0884-2914

Postmaster—Send change of address notice to:

Cambridge University Press 100 Brook Hill Drive West Nyack, NY 10994-2113, USA