

1<sup>ST</sup> YEAR IN  
PHOENIX



2016 **MRS**® SPRING MEETING & EXHIBIT  
March 28–April 1, 2016 | Phoenix, Arizona

# CALL FOR PAPERS

**Abstract Submission Opens**  
September 15, 2015

**Abstract Submission Deadline**  
October 15, 2015

## CHARACTERIZATION AND MODELING OF MATERIALS

- CM1 New Frontiers in Aberration Corrected Transmission Electron Microscopy
- CM2 Quantitative Tomography for Materials Research
- CM3 Mechanics and Tribology at the Nanoscale—*In Situ* and *In Silico* Investigations
- CM4 Verification, Validation and Uncertainty Quantification in Multiscale Materials Simulation

## ENERGY AND ENVIRONMENT

- EE1 Emerging Materials and Phenomena for Solar Energy Conversion
- EE2 Advancements in Solar Fuels Generation—  
Materials, Devices and Systems
- EE3 Materials and Devices for Full Spectrum Solar Energy Harvesting
- EE4 Electrode Materials and Electrolytes for Lithium and Sodium Ion Batteries
- EE5 Next-Generation Electrical Energy Storage Chemistries
- EE6 Research Frontiers on Liquid-Solid Interfaces in Electrochemical Energy Storage and Conversion Systems
- EE7 Mechanics of Energy Storage and Conversion—  
Batteries, Thermoelectrics and Fuel Cells
- EE8 Grid-Scale Energy Storage
- EE9 Hydrogen and Fuel Cell Technologies for Transportation—  
Materials, Systems and Infrastructure
- EE10 Recent Advances in Materials for Carbon Capture
- EE11 Caloric Materials for Renewable Energy Applications
- EE12 Radiation Damage in Materials—A Grand Multiscale Challenge
- EE13 Actinides—Fundamental Science, Applications and Technology
- EE14 Titanium Oxides—From Fundamental Understanding to Applications
- EE15 Materials for Sustainable Development—Integrated Approaches

## ELECTRONICS AND PHOTONICS

- EP1 Organic Excitonic Systems and Devices
- EP2 Silicon Carbide—Substrates, Epitaxy, Devices, Circuits and Graphene
- EP3 Perovskite-Based Photovoltaics and Optoelectronic Devices
- EP4 Emerging Silicon Science and Technology
- EP5 Metal Oxide Hetero-Interfaces in Hybrid Electronic Platforms
- EP6 Integration of Heterovalent Semiconductors and Devices
- EP7 Material and Device Frontiers for Integrated Photonics
- EP8 Resonant Optics—Fundamentals and Applications
- EP9 Materials and Processes for Nonlinear Optics
- EP10 Optoelectronic Devices of Two-Dimensional (2D) Materials
- EP11 Novel Materials for End-of-Roadmap Devices in Logic, Power and Memory
- EP12 Materials Frontiers in Semiconductor Advanced Packaging
- EP13 Tailoring Superconductors—  
Materials and Devices from Basic Science to Applications
- EP14 Materials for Next-Generation Displays
- EP15 Diamond Power Electronic Devices

## MATERIALS DESIGN

- MD1 Materials, Interfaces and Devices by Design
- MD2 Tuning Properties by Elastic Strain Engineering—  
From Modeling to Making and Measuring
- MD3 Functional Oxide Heterostructures by Design
- MD4 Phase-Change Materials and Applications
- MD5 Fundamentals of Organic Semiconductors—  
Synthesis, Morphology, Devices and Theory
- MD6 Electronic Textiles
- MD7 Advances in Lanthanide Materials for Imaging, Sensing,  
Optoelectronics and Recovery/Recycling
- MD8 Multiscale Behavior of Materials in Extreme Environments
- MD9 Magnetic Materials—From Fundamentals to Applications
- MD10 Micro-Assembly Technologies

## NANOTECHNOLOGY

- NT1 Functional Nanostructures and Metamaterials for Solar Energy  
and Novel Optical Phenomena
- NT2 Oxide and Chalcogenide-Based Thin Films and Nanostructures  
for Electronics and Energy Applications
- NT3 Carbon Nanofluidics
- NT4 Emerging Non-Graphene 2D Materials
- NT5 Nanodiamonds—Fundamentals and Applications
- NT6 Colloidal Nanoparticles—From Synthesis to Applications
- NT7 Nanoparticle Characterization and Removal
- NT8 Silicon Nanostructures—Doping, Interface Effects and Sensing

## SOFT MATERIALS AND BIOMATERIALS

- SM1 Liquid Crystalline Materials—Displays and Beyond
- SM2 Bioinspired Dynamic Materials—Synthesis, Engineering and Applications
- SM3 Soft Materials for Compliant and Bioinspired Electronics
- SM4 Engineering Biointerfaces with Nanomaterials
- SM5 Surfaces and Interfaces for Biomaterials
- SM6 Transient and Biologically-Inspired Electronics
- SM7 Future Healthcare Needs through Biomaterials, Bioengineering  
and the Cellular Building Block
- SM8 Bioinspired Metal Nanoparticles—Synthesis, Properties and Application
- SM9 Structure and Properties of Biological Materials and Bioinspired Designs
- SM10 Biofabrication-Based Biomaterials and Tissues

[www.mrs.org/spring2016](http://www.mrs.org/spring2016)

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**2016 MRS Fall Meeting & Exhibit**  
November 27 – December 2, 2016  
Boston, Massachusetts

**2017 MRS Spring Meeting & Exhibit**  
April 17 – 21, 2017  
Phoenix, Arizona

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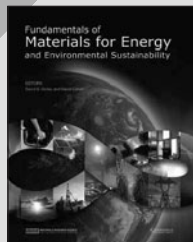
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from the Materials Research Society  
and Cambridge University Press

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TEXTBOOKS

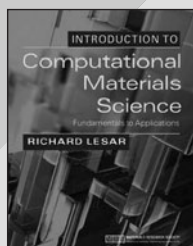


### Fundamentals of Materials for Energy and Environmental Sustainability

**EDITORS:** David S. Ginley and David Cahen  
**ISBN:** 9781107000230  
**List Price:** \$110.00  
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A unique, interdisciplinary textbook with contributions from more than 100 experts in energy and the environment from around the world.

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### Introduction to Computational Materials Science: Fundamentals to Applications

**AUTHOR:** Richard LeSar  
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Emphasizing essential methods and universal principles, this textbook provides everything students need to understand the basics of simulating materials behavior.

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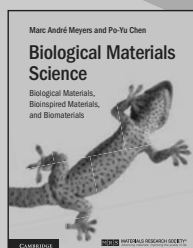


### Phase Transitions in Materials

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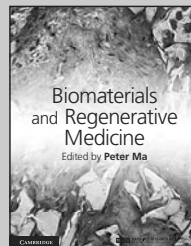


### Biological Materials Science: Biological Materials, Bioinspired Materials, and Biomaterials

**AUTHORS:** Marc André Meyers and Po-Yu Chen  
**ISBN:** 9781107010451  
**List Price:** \$99.00  
**MRS Member Discount Price:** \$79.00

Split into three sections—Basic Biology Principles, Biological Materials, and Bioinspired Materials and Biomimetics—this book presents biological materials along with the structural and functional classification of biopolymers, bioelastomers, foams, and ceramic composites.

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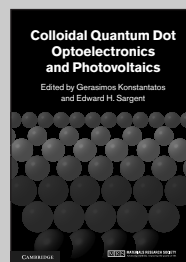


### Biomaterials and Regenerative Medicine

**EDITOR:** Peter Ma  
**ISBN:** 9781107012097  
**List Price:** \$185.00  
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Emphasizing basic principles and methodology, this book covers stem cell interactions, fabrication technologies, design principles, physical characterization and biological evaluation, across a broad variety of systems and biomaterials.

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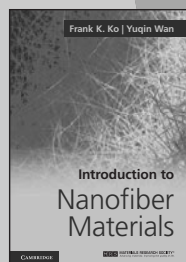


### Colloidal Quantum Dot Optoelectronics and Photovoltaics

**EDITORS:** Gerasimos Konstantatos and Edward H. Sargent  
**ISBN:** 9780521198264  
**List Price:** \$130.00  
**MRS Member Discount Price:** \$104.00

Written in an accessible style by the world's leading experts, this book captures the most up-to-date research in colloidal quantum dot devices.

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### Introduction to Nanofiber Materials

**AUTHORS:** Frank K. Ko and Yuqin Wan  
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Presenting the latest coverage of the fundamentals and applications of nanofibrous materials and their structures for graduate students and researchers, this book bridges the communication gap between fiber technologists and materials scientists and engineers.

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### Thermodynamics of Surfaces and Interfaces: Concepts in Inorganic Materials

**AUTHOR:** Gerald H. Meier  
**ISBN:** 9780521879088  
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Submission Deadline—November 1, 2015



## Advanced Materials and Structures for Solar Fuels

Efficient and cost-effective generation of renewable fuels, such as hydrogen from renewable resources like solar energy, is crucial to ensure a sustainable future. Due to the lack of materials and structures, however, current technologies for renewable hydrogen production via photoelectrochemical (PEC) water splitting have significant challenges in efficiency, durability, and cost. In view of their importance in sustainable energy and environmental applications, a compilation of accomplishments in photocatalytic materials research will promote rapid advances of the field.

This *JMR* Focus Issue will present latest developments in photocatalytic materials and structures, with focus on both the fundamental materials science and their applications in solar fuels production.

### Contributed articles are sought in the following areas:

- ◆ Fundamental studies of solar fuels generation via PEC water splitting
- ◆ Semiconductor materials, advanced structures, and systems for solar fuels
- ◆ Surface and interface properties of semiconductor/electrolyte junctions
- ◆ Nano-materials and heterostructures
- ◆ Overlayers, underlayers, etc. for enhanced kinetics and charge transfer
- ◆ Molecular and mesoscopic modifications of photocatalysis
- ◆ Modeling and simulation of semiconductors, interfaces, and transport processes
- ◆ Short reviews of materials and structures

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To be considered for this issue, new and previously unpublished results significant to the development of this field should be presented. The manuscripts must be submitted via the *JMR* electronic submission system by **November 1, 2015**. Manuscripts submitted after this deadline will not be considered for the issue due to time constraints on the review process. **Submission instructions may be found at [www.mrs.org/jmr-instructions](http://www.mrs.org/jmr-instructions)**. Please select "Focus issue: *Advanced Materials and Structures for Solar Fuels*" as the manuscript type. **Note our manuscript submission minimum length of 6000 words**. All manuscripts will be reviewed in a normal but expedited fashion. Papers submitted by the deadline and subsequently accepted will be published in the Focus Issue. Other manuscripts that are acceptable but cannot be included in the issue will be scheduled for publication in a subsequent issue of *JMR*.

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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 over 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 Communications* is a full-color letters and perspectives journal focused on groundbreaking work across the spectrum of materials research. MRS Energy & Sustainability—A Review Journal publishes reviews on key topics in materials research and development as they relate to energy and sustainability.

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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.

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