jmr Journal of MATERIALS RESEARCH
JUNE 2016

Submission Deadline—November 1, 2015

CALL FOR PAPERS

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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MANUSCRIPT SUBMISSION

To be considered for this issue, new and previously unpublished results significant to the development of this field should be presented.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.** Please select "Focus issue: *Advance 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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Please contact **jmr@mrs.org** with questions.

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Journal of MATERIALS RESEARCH
JULY 2016

Submission Deadline—December 1, 2015

CALL FOR PAPERS

Advances and Challenges in Carbon-based Tribomaterials

Carbon-based materials have captured broad interest in the materials science community for decades. Carbon-based systems comprise an impressively broad and continually expanding range of materials, from the building blocks of biology to carbon allotropes with extreme and exotic properties such as nanotubes, buckyballs, graphene, and diamondoids.

This *JMR* Focus Issue will highlight the current understanding and remaining challenges for evaluating the potential of carbon-based materials for tribological systems. The most recent findings in the synthesis, characterization, and application of carbon-based materials will be highlighted, as well as future possibilities for new carbon-based tribological coatings.

The aims of this Focus Issue are to inform colleagues in industry and academia about methods, analysis, design advances, and new materials concerning all kinds of carbon-based materials with improved tribological properties or systems, from fundamental research to applied uses, with resulting benefits of longer product/component life, less energy consumption, and reduction in product development time and cost.

Potential papers will feature a mix of experimental, numerical, and/or theoretical articles dealing with all aspects of carbon-based tribomaterials research.

Contributed papers are solicited in the following areas:

- Adhesion
- Friction models
- New methods and technologies
- Materials transfer
- Rough surfaces
- Thermal stability
- Tribofilms
- Wear models
- Asperity interactions
- Friction and wear mechanisms
- Materials characterizations and synthesis
- Physics of wear
- Surface engineering and coatings
- Tribocorrosions
- Tribotesting

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Journal of MATERIALS RESEARCH
FOCUS ISSUE · OCTOBER 2016

Submission Deadline—March 1, 2016

CALL FOR PAPERS

Reinventing Boron Chemistry and Materials for the 21st Century

Boron-based compounds are an ideal platform for developing new technologies due to their thermal and chemical stability, mechanical strength, and electrical and magnetic properties. Boron's capability to adopt a wide range of bonding configurations facilitates the creation of structurally-rich compounds with diverse electrical and mechanical properties. This Focus Issue of the *Journal of Materials Research* will highlight exciting recent developments in understanding, designing, and preparing boron-containing materials.

A multitude of potential applications exists for these compounds, including coatings for thermal and wear protection, high-field permanent magnets, grinding media, thermoelectric devices, neutron detectors, and superconductors. To advance these engineering applications, a fundamental understanding of how composition and microstructure can be used to control physical properties is needed, in addition to accessible processing methods with which to reliably produce these materials.

The editors encourage contributed papers concerned broadly with boron-based materials research. Both fundamental and applied subjects are welcome.

Potential topics of interest include, but are not limited to, the following areas:

- Processing methods for engineering microstructure and grain boundaries
- Theoretical modeling and design of boride compounds
- Development of boron-based electronics for sensors
- Novel routes for synthesizing boron compounds
- Boron-containing magnetic materials
- Methods for the preparation of boride nanomaterials
- Boron-based materials for ultra high temperature, oxidative, and corrosive environments
- New boride compositions, phases, and polymorphs
- Boron materials for energy storage and generation
- Engineering boron surfaces
- Properties related to ionic transport and storage

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Journal of MATERIALS RESEARCH

2017 JMR Focus Issues

CALL FOR PROPOSALS

PROPOSALS are now being accepted for *JMR* Focus Issues to be published in 2017.

SUBMISSION DEADLINE—DECEMBER 1, 2015

Although each regular issue of *JMR* covers a range of materials research topics, Focus Issues are devoted entirely to a single topic and are published several times a year. Focus Issues allow the journal to comprehensively examine the current research in a particular area of interest to *JMR* readers. See **www.mrs.org/jmr-focus** for previously published and planned Focus Issues.

Lead a Focus Issue on your area of expertise!

Proposals should provide:

- **PROPOSED TOPIC**
  Topics should be interdisciplinary materials research and focused on the science of the field. Focus Issues should cover emerging and progressing fields in materials or topics that would benefit from comprehensive coverage.
- **PROPOSED GUEST EDITOR NAMES AND FULL CONTACT INFORMATION**
  Three to four guest editors, representing the diversity of The Materials Research Society®, are required. Guest editors should be knowledgeable in the field of the proposed topic, able to present a balanced view of the topic, organized, and able to meet deadlines. Previous editorial experience is a plus.
- **OVERALL SCOPE**
  Describe the Focus Issue topic in one or two paragraphs, and why a Focus Issue is important at this time. Evaluation will be based on scientific value, presentation quality and plans to attract cutting-edge papers in the field.
- **PROPOSED SCHEDULE TO PRODUCE THE ISSUE**
  During what quarter of 2016 (January-March / April-June / July-September / October-December) do you prefer to organize the Focus Issue? For 2017 publication, the Call for Papers should be released by *JMR* at least 12 months before the publication date.

Visit **www.mrs.org/jmr-proposals-2017** for more information and guidelines regarding required elements. **Submit your proposal to the JMR Editor-in-Chief at jmr@mrs.org no later than December 1, 2015.**

Focus Issue topics for 2017 will be selected by the Editor-in-Chief and Associate Editors by January 30, 2016.

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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 prospectives 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.

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.

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