

Submission Deadline—October 1, 2016



Microstructural Characterization for Emerging Photovoltaic Materials

Emerging solar cell technologies, in particular those based on organic molecules and polymers, inorganic-organic perovskites, and kesterite-based semiconductors have begun demonstrating their potential for inexpensive solar energy on a terawatt scale. Increasing the power conversion efficiency and device lifetimes of these materials requires exercising nanoscale control over thin film microstructure and device interfaces across large areas. Each of these systems has presented unique challenges to their full morphological and microstructural characterization, with issues ranging from poor scattering contrast between layers (organics) to overlapping diffraction features (kesterites). Advances in x-ray and neutron scattering methods have enabled breakthroughs in understanding the relationship between thin film microstructure and device-level properties in these emerging energy materials, findings which have propelled photovoltaic performance over the last decade. Increased access to synchrotron and neutron sources, coupled with the development of new tools and techniques that merge scattering and spectroscopic information, are providing exciting opportunities to probe the microstructural evolution of these materials from fabrication through to fully operational devices subject to real-world environments.

Research papers are solicited in the use of x-ray and neutron characterization methods to monitor microstructure of these emerging energy materials, in particular methods that enable thin-film monitoring under fabrication and/or operational conditions. Approaches that demonstrate applications to the improved design and fabrication of materials and devices—affording insights into the underlying chemistry, materials science, and photophysics—are highly encouraged.

The issue will have a special emphasis on:

- ◆ Techniques that enable quantitative correlation between electronic performance and bulk microstructural evolution of emerging solar cell technologies, highlighting X-ray and neutron tools, but not excluding other approaches
- ◆ *In-situ* and *in-operando* techniques for monitoring physico-chemical interactions during photovoltaic device operation, including spectroscopic methods
- ◆ New experimental and computational approaches for classifying and quantifying structural properties in molecular and disordered electronic materials
- ◆ Integration of characterization tools in process monitoring for scalable module fabrication

GUEST EDITORS

Moritz Riede, University of Oxford, United Kingdom

Chris Nicklin, Diamond Light Source, United Kingdom

Dean M. DeLongchamp, National Institute of Standards and Technology, USA

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 **October 1, 2016**. 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: *Microstructural Characterization for Emerging Photovoltaic Materials*" as the manuscript type. **Note our manuscript submission minimum length of 6,000 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*.

jmr@mrs.org
Please contact jmr@mrs.org with questions.

CALL FOR PAPERS



jmr

Journal of
MATERIALS RESEARCH

JANUARY 2017

Submission Deadline—June 1, 2016



Early Career Scholars in Materials Science Annual Issue

This second Annual Issue invites full length research and review articles by materials researchers, who have not yet achieved full professorship at the time of submission, for peer review and publication in the January 2017 issue. The Annual Issue provides a unique opportunity to be highlighted and promoted early in one's research career. To increase attention to these papers, this issue will be published on an **open access** basis. Although some papers may have multiple authors, only the Early Career Scholar submitting the paper will be identified with a photo and brief bio when the paper is published. Authors from around the world are invited to submit papers that span the topical coverage of *JMR* including advanced ceramics, metals, polymers, composites, and combinations thereof related to energy, electrical, magnetic, optical, and structural properties and related applications and reporting on:

- ◆ Advanced characterization methods and techniques
- ◆ Computational materials science when coupled with experimentation
- ◆ Fundamental materials science
- ◆ Interfacial science as relates to material process understanding and improvements
- ◆ Material property enhancements through advances in materials processing
- ◆ Material property enhancements through material design (especially Materials Genome related)
- ◆ Material combinations and design that improve system performance
- ◆ Nanoscience and nanotechnology

GUEST EDITORS

Gary L. Messing, Pennsylvania State University, USA

Jürgen Eckert, Montanuniversität Leoben, Austria

Linda S. Schadler, Rensselaer Polytechnic Institute, USA

MANUSCRIPT SUBMISSION

To be considered for the issue, the Early Career Scholar must be listed as the first and lead author and not yet be a full professor at the time of submission. Also, the manuscript must report new and previously unpublished results. Review articles are invited but must be approved by the Editor-in-Chief before submission. Manuscripts must be submitted via the *JMR* electronic submission system by **June 1, 2016**. 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 "**Special Issue: Early Career Scholars in Materials Science**" 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 Special Issue. Other manuscripts that are acceptable but cannot be included in the issue will be scheduled for publication in a subsequent issue of *JMR*.

Papers will be accompanied by a photo and short bio of the lead author only. These materials must be submitted along with the original submission of the paper.

jmr@mrs.org

Please contact jmr@mrs.org with questions.

CALL FOR PAPERS

MATERIALS RESEARCH SOCIETY®

2016 Board of Directors

Officers

Kristi S. Anseth, *President*
Oliver Kraft, *Past President*
Susan Trolier-McKinstry, *Vice President*
Sean J. Hearne, *Secretary*
David J. Parrillo, *Treasurer*
Todd M. Osman, *Executive Director*

Directors

Charles T. Black
Alexandra Boltasseva
C. Jeffrey Brinker
Matt Copel
Paul Drzaic
Yury Gogotsi
Hideo Hosono
Young-Chang Joo
Karen L. Kavanagh
Kornelius Nielsch
Christine Ortiz
Sabrina Sartori
Magaly Spector
Loucas Tsakalakos
Anke Weidenkaff

2016 Publications Committee

R.A. Vaia, *Chair*
S.P. Baker, *Editors Subcommittee*
A.J. Hurd, *New Publication Products Subcommittee*
R.J. Nemanich, *Publications Quality Subcommittee*

2016 MRS Committee Chairs

B.M. Clemens, *Academic Affairs*
A. Polman, *Awards*
K. Whittlesey, *Government Affairs*
D.S. Ginley, *Meetings Committee*

Y. Chabal, *Member Engagement*
E. Kupp, *Public Outreach*
R.A. Vaia, *Publications*

MRS Headquarters

T.M. Osman, *Executive Director*
J.A. Dillen, *Director of Finance and Administration*
D. Dozier, *Director of Government Affairs*
P.A. Hastings, *Director of Meeting Activities*
E.M. Kiley, *Director of Communications*

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 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 journals maintain a proud tradition of editorial excellence in scientific literature. The *Journal of Materials Research*, the archival journal spanning fundamental developments in materials science, is published twenty-four times a year by MRS and Cambridge University Press. *MRS Bulletin* is a premier source for comprehensive research trends and a timely scan of professional activities. *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. *MRS Advances* is a peer-reviewed online-only journal featuring impactful and emerging research, designed to reflect the way materials researchers work, write, publish and share their results.

The *Journal of Materials Research* is free electronically to all MRS regular and student members. 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.

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
MRS MATERIALS RESEARCH SOCIETY
Advancing materials. Improving the quality of life.

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

Postmaster—Send change of address notice to:

ISSN: 0884-2914

Cambridge University Press
One Liberty Plaza, 20th Floor,
New York, NY 10006