



Submission Deadline—January 1, 2018

Soft Magnetic Materials: Synthesis, Characterization, and Applications

A push for greater efficiency and decreased size in power electronics and electrical machines demands higher performing soft magnetic materials. In order to be competitive, advanced soft magnetic materials must be affordable and their production volume needs to meet the anticipated demand. This drive for higher efficiency and diminished size, weight, and power (SWaP) is fueled in part by the development and adoption of wide bandgap (WBG) semiconductors. WBG devices enable very fast switching (1 kHz to as high as 10 MHz), high voltage operation, and high temperature operation in both power electronics and electrical machine drives. Researchers in the field of soft magnetics must rise to this challenge and create soft magnetic materials with high magnetic flux densities and low electrical losses, while also improving the theoretical assessment of magnetic behavior and energy losses, at these elevated switching frequencies.

This JMR Focus Issue will include the latest research on soft magnetic materials for next-generation power electronics, as well as in electrical machines, and coverage of advanced characterization techniques that will be vital to understanding both the nanostructure and dynamical properties in soft magnetic materials. This behavior of soft magnets on small length and short time scales will ultimately govern their behavior in inductors, transformers, motors, and generators.

Contributed articles are sought in the following areas:

- ◆ New bulk and composite soft magnetic materials
- ◆ Developments in the synthesis and fabrication of soft magnetic materials
- ◆ Advanced characterization techniques relevant to soft magnets
- ◆ Implementation of soft magnetic materials in power electronics and electrical machines
- ◆ Modeling and simulation of soft magnetic materials
- ◆ Overviews of the field of soft magnetic materials
- ◆ Perspectives on future opportunities in the field of soft magnetics

GUEST EDITORS

Todd Monson, Sandia National Laboratories, USA

Josefina Silveyra, Universidad de Buenos Aires and Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Argentina

Enzo Ferrara, Istituto Nazionale di Ricerca Metrologica-INRIM, Italy

Mitra Taheri, Drexel University, USA

Torbjörn Thiringer, Chalmers University of Technology, Sweden

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To be considered for this issue, new and previously unpublished results significant to the development of this field should be presented.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 **January 1, 2018**. Manuscripts submitted after this deadline will not be considered for the issue due to time constraints on the review process. Please select "Focus issue: *Soft Magnetic Materials: Synthesis, Characterization, and Applications*" as the manuscript type. **Note our manuscript submission minimum length of 5500 words, with a maximum of 8 figures. Review articles must be pre-approved by proposal to the Editor-in-Chief. The proposal form and author instructions may be found at www.mrs.org/jmr-instructions.** 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



Submission Deadline—December 1, 2017

Stabilization of Organic Electronic Materials and Devices

The unique properties of organic semiconductors grant unrivaled potential for highly efficient, low-cost, and sustainable optoelectronic applications, e.g., in light and power generation, sensor technology, and electronic circuitry. Semiconducting polymers and small molecules can be scaled up to satisfy industrial needs and be processed onto plastic substrates using high throughput technologies. This makes a technological and economic breakthrough in the near future possible.

Despite the widespread potential, organic electronics face important challenges. A critical factor in the overall cost assessment is the lifetime of a final product. The current generation of organic electronics offers limited stability and need to be encapsulated using costly barrier materials. A fundamental understanding of the processes governing performance decay paired with innovative material approaches is essential for enhancing the longevity of organic optoelectronic devices and thus guaranteeing market readiness. This Focus Issue will address both mechanistic aspects that determine the lifetime of materials and devices as well as future strategies with practical relevance for increasing the lifespan and reliability of organic electronics.

Contributed articles are sought in the following areas:

- ◆ Fundamental degradation mechanisms in active materials and finished devices (photophysical and spectroscopic studies)
- ◆ Novel material concepts leading to enhanced intrinsic material stability (materials design, predictive simulations, materials synthesis, etc.)
- ◆ Extrinsic material concepts for stabilizing organic electronics materials (stabilizing additives, optimal microstructure, crystallinity, etc.)
- ◆ Realization of stabilization approaches in device structures with practical relevance

GUEST EDITORS

Christoph Brabec, Friedrich-Alexander University Erlangen-Nuremberg, Germany

Hans-Joachim Egelhaaf, Bavarian Center for Applied Energy Research (ZAE Bayern), Germany

Michael Salvador, King Abdullah University of Science and Technology, Saudi Arabia

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 **December 1, 2017**. Manuscripts submitted after this deadline will not be considered for the issue due to time constraints on the review process. Please select "Focus issue: *Stabilization of organic electronic materials and devices*" as the manuscript type. **Note our manuscript submission minimum length of 5500 words, with a maximum of 8 figures. Review articles must be pre-approved by proposal to the Editor-in-Chief. The proposal form and author instructions may be found at www.mrs.org/jmr-instructions.** 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



CALL FOR PROPOSALS

PROPOSALS are now being accepted
for *JMR* Focus Issues to be published in 2019.
SUBMISSION DEADLINE—JANUARY 31, 2018

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 2018 (January-March / April-June / July-September / October-December) do you prefer to organize the Focus Issue? For 2019 publication, the Call for Papers should be released by *JMR* at least 12 months before the publication date.

Visit www.mrs.org/jmr-focus-proposals for more information and guidelines regarding successful proposals. **Submit your proposal to the JMR Editor-in-Chief at jmr@mrs.org no later than January 31, 2018.**

Focus Issue topics for 2019 will be selected by the Editor-in-Chief and Associate Editors by February 28, 2018.

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

MATERIALS RESEARCH SOCIETY®

2017 Board of Directors

Officers

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

Directors

Charles T. Black
Li-Chyong Chen
Matt Copel
Paul Drzaic
Dawnielle Farrar-Gaines
Yury Gogotsi
Claudia Gutierrez-Wing
Young-Chang Joo
Karen L. Kavanagh
Lincoln Lauhon
Christine Ortiz
Sabrina Sartori
Magaly Spector
Molly M. Stevens
Anke Weidenkaff

2017 Publications Committee

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

2017 MRS Committee Chairs

B.M. Clemens, *Academic Affairs*
A. Polman, *Awards*
K. Whittlesey, *Government Affairs*
T. Aselage, *Meetings*

S.M. Haile, *Member Engagement*
E. Kupp, *Public Outreach*
S.P. Baker, *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.

Disclaimer: Authors of each article appearing in this Journal are solely responsible for all contents in their article(s) including accuracy of the facts, statements, and citing resources. Facts and opinions are solely the personal statements of the respective authors and do not necessarily represent the views of the editors, the Materials Research Society, or Cambridge University Press.

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.



Postmaster—Send change of address notice to:

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

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

ISSN: 0884-2914