

Submission Deadline—March 1, 2016



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## 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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To be considered for this issue, new and previously unpublished results significant to the development of this field should be presented.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 **March 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](http://www.mrs.org/jmr-instructions)**. Please select "Focus issue: *Reinventing Boron Chemistry and Materials for the 21st Century*" 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](mailto:jmr@mrs.org)**

Please contact [jmr@mrs.org](mailto:jmr@mrs.org) with questions.

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
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- ◆ Material property enhancements through material design (especially Materials Genome related)
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**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.**

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- CM4 Verification, Validation and Uncertainty Quantification in Multiscale Materials Simulation

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- 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
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- EE10 Recent Advances in Materials for Carbon Capture
- EE11 Caloric Materials for Renewable Energy Applications
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- EE13 Actinides—Fundamental Science, Applications and Technology
- EE14 Titanium Oxides—From Fundamental Understanding to Applications
- EE15 Materials for Sustainable Development—Integrated Approaches

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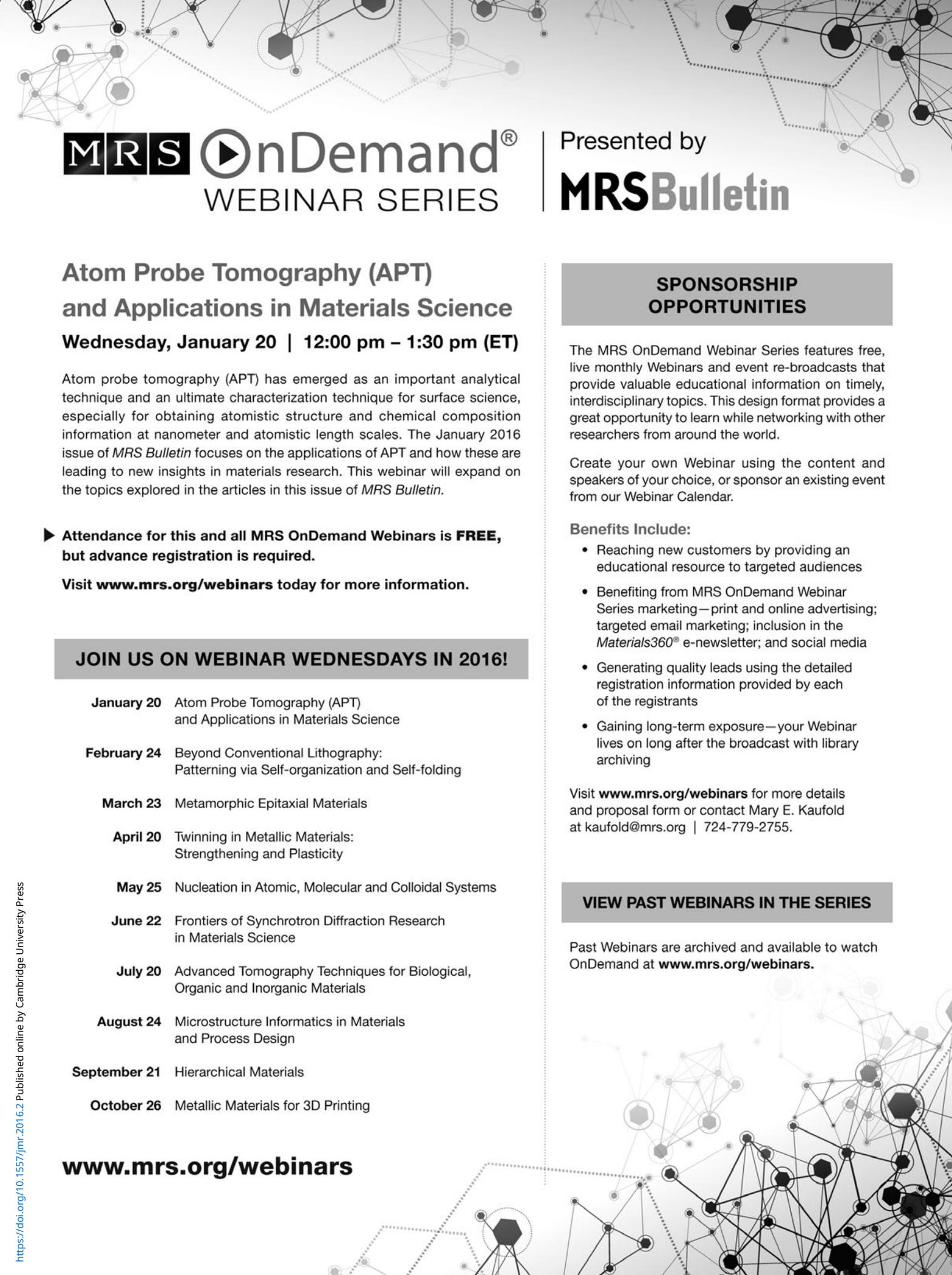
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