

Submission Deadline—June 1, 2018



Early Career Scholars in Materials Science 2019

The Fourth Annual *JMR* Issue to promote outstanding research
by future leaders in materials science

This fourth Annual Issue invites full length research and review articles by materials researchers, who have completed their Ph.D but not yet achieved full professorship at the time of submission, for peer review and publication in the January 2019 issue. Ph.D students are not eligible to submit. 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

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MANUSCRIPT SUBMISSION

To be considered for the issue, the Early Career Scholar must 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 Also, the manuscript must report new and previously unpublished results.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 issue editors before submission (see www.mrs.org/jmr-manuscript-types/ regarding review articles). Manuscripts must be submitted via the *JMR* electronic submission system by June 1, 2018. Manuscripts submitted after this deadline will not be considered for the issue due to time constraints on the review process. Submission instructions can be found at www.mrs.org/jmr-instructions. Please select "ANNUAL ISSUE: *Early Career Scholars in Materials Science 2019*" as the manuscript type. **Note our manuscript submission minimum length of 3250 words, with at least 6 and no more than 10 figures and tables.** (Additional figures and tables may be submitted as supplemental material.) 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 must be accompanied by a photo (uploaded separately as a high resolution TIF or EPS file) and 200-300 word bio of the Early Career Scholar only. These materials must be submitted along with the original submission of the paper.

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Please contact jmr@mrs.org with questions.

CALL FOR PAPERS



Submission Deadline—March 1, 2018

Fundamental Understanding and Applications of High-Entropy Alloys

As an emerging field, research on high-entropy alloys now has attracted rising worldwide attention and interest from both academia and industry since 2004. The number of published papers increases rapidly each year, and there have been many dedicated conference symposia and workshops on high entropy alloys. Traditional physical metallurgy principles as well as novel processing methods have all been applied to high entropy alloys, and new materials with extraordinary properties have been reported. The high-entropy concept has been extended to ceramics, semiconductors, polymers, superconducting materials, etc. As a result, the field has advanced dynamically and rapidly in almost every aspect of materials science. This *JMR* Focus Issue will provide readers up-to-date information on high-entropy alloys regarding their fundamentals (e.g., formation, thermodynamics, kinetics, structures, defects, mechanical properties, functional properties, environmental properties) and applications (e.g., structural materials, coatings, nuclear materials, high-temperature materials).

Contributed papers are solicited in the following areas:

- ◆ Thermodynamics: Phase diagrams, phase transformations (e.g., at high temperature and/or high pressure), thermochemistry measurements
- ◆ Kinetics: Diffusivities, high throughput diffusion multiples
- ◆ Computational modeling: First-principles, molecular dynamics, Monte Carlo, phase field, finite element methods, CALPHAD, continuum, empirical parameters, machining learning
- ◆ Defects: Vacancies, dislocations, stacking faults, twinning, grain boundaries, interfaces, surfaces
- ◆ Processing: Homogenization, additive manufacturing, rapid solidification, grain refinement, powder metallurgy
- ◆ Microstructure characterization: Neutron, synchrotron and x-ray scattering, transmission electron microscopy (TEM), high-resolution TEM, in situ TEM, atom-probe tomography
- ◆ Mechanical properties: Elasticity, plasticity, fracture, wear, creep, fatigue, high strain rate, nanoindentation
- ◆ Environmental properties: Corrosion, oxidation, irradiation
- ◆ Other high-entropy materials, such as oxides, carbides, borides, polymers, compounds

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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 **March 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: *Fundamental Understanding and Applications of High-Entropy Alloys*” as the manuscript type. **Note our manuscript submission minimum length of 6000 words, with a maximum of 6-8 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*.

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CALL FOR PAPERS

Submission Deadline—April 1, 2018



Catalytic Engineered Materials for Commercial and Industrial Energy Applications

Environmental pollution due to combustion of fossil fuels and other chemical energy components has been a major worldwide challenge for decades, leading to extensive energy research with mainstays of upgrading bitumen and coal, and hydro-processing fuels. Refining processes that exploit the efficiency and long life span of catalytic materials can (1) lower the high content of heterogeneous atoms such as sulfur and other pollutants, (2) improve methane reforming, and (3) enhance water splitting efficiency. Editors for this JMR Focus Issue invite the materials community to share research on catalytic materials as a fundamental pillar in the development of fuel components, including commercial liquid fuels, hydrogen production and methane reforming as detailed below.

Contributed articles are sought in the following areas:

- ◆ Computer assisted density functional theory simulations
- ◆ Novel chemistry methods of synthesis (e.g., Fischer-Tropsch, hydrogenation, hydrothermal, sol-gel, etc.)
- ◆ Characterization including *in-situ*, *operando*: UV-vis, HRTEM, SEM and XRD
- ◆ Fabrication, integration, and scaling
- ◆ Industrial commercialization and energy production

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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.

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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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