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# call for papers

***JOM* is seeking contributions on the following topics for 2019. For the full Editorial Calendar, along with author instructions, visit the *JOM* website at jom.tms.org.**


## August 2019:
### Manuscript Deadline: March 1, 2019

#### Topic: Solidification Defects in Additive Manufactured Materials

**Scope:** Solidification defects are commonly observed in a variety of metal additive manufacturing processes, not limited to powder bed fusion, direct energy deposition, and binder jet processes. Recent advances in both experimental and modeling techniques allow in-depth understanding and prediction for such defects during rapid solidification environments. New scientific discoveries and/or industrial applications to understand and/or control solidification defects are welcome for publication.
**Guest Editor:** Lang Yuan
**Sponsor:** Solidification Committee

#### Topic: Characterization of Advanced Sintering Materials

**Scope:** Sintering is one of the major processes for synthesis and production of various materials such as ceramics, polycrystalline alloys, sintered ores, iron ore pellets, calcined minerals, slags, and organic metals. A solo achievement from one material has potential to inspire the process technology for other types of materials. This topic will focus on the sintering process, phenomenon, and mechanisms of a material by heating at high temperature.
**Guest Editors:** Mingming Zhang and Bowen Li
**Sponsor:** Materials Characterization Committee

#### Topic: Multiscale Computational Strategies for Heterogeneous Materials with Defects

**Scope:** Multiscale modeling is a familiar theme, integral to heterogeneous materials. Challenges are encountered in the presence of evolving defects at multiple scales leading to extreme behavior. Such complexities may be addressed by a combination of hierarchical (bottom-up) and concurrent (top-down coupling) strategies. The models should be motivated and validated by experiments and characterization at relevant scales. Material heterogeneity also calls for uncertainty quantification in the treatments. This topic is devoted to approaches addressing these issues.
**Guest Editors:** Somnath Ghosh and David McDowell
**Sponsor:** ICME Committee

#### Topic: Precipitation Mechanisms in Non-ferrous Alloys

**Scope:** This topic addresses the range of phase transformation behavior and mechanisms across a series of different non-ferrous metal alloys. The papers will address the implications of such phase changes on microstructure and associated properties.
**Guest Editors:** Gregory Thompson, Deep Choudhuri, Rajarshi Banerjee, and Eric Lass
**Sponsor:** Phase Transformations Committee

## September 2019:
### Manuscript Deadline: April 1, 2019

#### Topic: Aluminum: Recycling and Environmental Footprint

**Scope:** This topic covers recycling of aluminum and its alloys as well as the environmental ramifications of both primary and secondary aluminum.
**Guest Editors:** David Wong and Pascal Lavoie
**Sponsors:** Aluminum Committee and Recycling and Environmental Technologies Committee

#### Topic: Advanced Electronic Interconnection

**Scope:** Papers are invited for this special topic covering recent advances of bonding technologies for 2.5D and 3D IC, wide-band-gap (WBG) semiconductors, and flexible electronics.
**Guest Editor:** Shih-Kang Lin
**Sponsor:** Alloy Phases Committee

#### Topic: Advances in Processing, Manufacturing, and Applications of Magnetic Materials

**Scope:** Papers are invited on novel magnetic materials, advances in processing or relevant property measurement, and circular manufacturing of magnetic materials. Of interest are permanent and soft magnets and magnetocaloric

materials, and also multifunctional magnetic materials such as magnetoelastic, magnetoelectric, and magnetoresistive materials. Applications of interest include sensors and actuators, energy harvesting and storage, motors and generators, transformers and inductors, data storage, and memory applications.
**Guest Editors:** Orlando Rios and Ikenna Nlebedim
**Sponsors:** Magnetic Materials Committee and Energy Conversion and Storage Committee

### Topic: Recycling Methods for Industrial Metals

**Scope:** This topic will compare recycling methods for different metals which will stimulate thinking about similarities and differences and engender improvements in recycling processes and in the use of metals.
**Guest Editor:** Dirk Verhulst
**Sponsor:** Recycling and Environmental Technologies Committee

### Topic: Sustainable Pyrometallurgical Processing

**Scope:** Extractive metallurgy is experiencing a steady transformation towards more sustainable processes based on alternative sources and practices. This topic covers the development of recycling and bio-based fuel technologies to meet current environmental standards as well as sourcing issues. Fields include but are not limited to: process optimization, alternative material sourcing, by-product utilization, and energy efficiency.
**Guest Editors:** Joseph Grogan and Camille Fleuriault
**Sponsor:** Pyrometallurgy Committee

### Topic: Properties of Interfaced Materials and Films

**Scope:** This subject is open to all types of interfaces including: ultra-thin layered films, thin films on bulk materials, nanocrystals embedded in bulk materials and textured coated surfaces to name a few. This special topic focuses on research papers that address the electronic, optical, biological, magnetic and mechanical properties of interfaced systems. It also welcomes in-situ characterization studies of interfaces, and encourages theoretical modeling approaches of interfaced materials and properties.
**Guest Editors:** Sufian Abedrabbo, Anthony T. Fiory, and Nuggehalli M. Ravindra
**Sponsor:** Thin Films and Interfaces Committee

## October 2019:

### Manuscript Deadline: May 1, 2019

### Topic: New Developments in Nanomechanical Methods

**Scope:** This special topic will focus on the advances used to measure mechanical properties of small-volume and low-dimensional materials, as well as bulk nanostructured materials. Of particular interest are new instrumentation, methods, and environmental control to evaluate mechanical behavior in terms of size effects, time scales, environmental testing, as well as in-situ experimental methods.
**Guest Editors:** Megan Cordill and Janelle Wharry
**Sponsor:** Nanomechanical Materials Behavior Committee

### Topic: Microstructure Evolution During Deformation Processing

**Scope:** Understanding how deformation processing techniques can control the microstructural evolution in metals is vital for alloy development. Processing-structure-properties-performance relationships can be created from the characterization data and, along with modeling, allow for the definition of material-specific process parameters to control the microstructural evolution and resulting material properties. Papers are invited that investigate all these aspects of microstructural evolution during deformation processing.
**Guest Editor:** Daniel Koughlin
**Sponsors:** Shaping and Forming Committee and Advanced Characterization, Testing, and Simulation Committee

### Topic: Progress in High-Entropy Alloys

**Scope:** High-entropy alloys (HEAs) loosely refer to multi-principal-element solid solution alloys due to their high configurational entropy. The unique compositions and the resulting attractive properties of HEAs have stimulated growing research interest due to scientific curiosity and potential industrial applications. This special topic on high-entropy alloys invites contributions from authors working in the various fields of HEAs to disseminate the rapid progress in this fascinating and expanding class of advanced materials.
**Guest Editors:** Chuang Zhang, Michael C. Gao, and Shih-Kang Lin
**Sponsor:** Alloy Phases Committee

### Topic: Modeling and Simulation of Composite Materials

**Scope:** Progress in micro- and nanoscale composites has resulted in the development of a number of computational methods to address various length-scale phenomena in composites. This topic will highlight modeling and simulation currently used in advancing the understanding of the complex interactions and structure-property relationship in composite materials by ab-initio methods, atomistic methods, mesoscale simulations, finite element methods, and multi-scale modeling.
**Guest Editors:** Rakes Behera, Dinesh Pinisetty, and Dung Luong
**Sponsor:** Composite Materials Committee

### Topic: Mesoscale Materials Science: Experiments and Modeling

**Scope:** Many in-situ techniques such as scanning and transmission electron microscopy, atomic force microscopy, and x-ray diffraction have been developed to probe materials at the mesoscale. At the same time, availability of faster and cheaper computational power lead to the development of high fidelity, mesoscopic models. This topic invites contributions in the area of advanced mechanical testing, enhancements in computational approaches, and integration of experiments and modeling for engineering the evolution of mesoscopic structures and defects.
**Guest Editors:** Saurabh Puri and Amit Pandey
**Sponsor:** Invited