JOM, Vol. 72, No. 1, 2020
https://doi.org/10.1007/s11837-019-03943-5

call for papers

JOM **is seeking contributions on the following topics for 2020. For the full Editorial Calendar, along with author instructions, visit www.tms.org/EditorialCalendar.**

July 2020
Manuscript Deadline: February 1, 2020

Topic: Characterization of Amorphous Materials

Scope: Characterization of amorphous materials is quite challenging as compared to their crystalline counterpart. In this respect, this topic will include but is not limited to characterization of amorphous solids and possibly liquids using advanced analytical techniques such as electron microscopy, x-ray radiation, thermal analyses, spectroscopy, atom probe tomography, etc. Particular emphasis will be paid to less known characterization techniques used for amorphous materials such as fluctuation electron microscopy/x-ray scattering.
Editors: Yunus Eren Kalay, Rajiv Soman, and Zhiwei Peng
Sponsor: Materials Characterization Committee

Topic: Machine Learning Applications in Advanced Manufacturing Processes

Scope: Machine learning holds tremendous promise for revolutionizing modern manufacturing, from conventional operations to new advanced manufacturing processes, such as additive manufacturing. This special topic focuses on reducing waste, energy usage and carbon emissions, and spurring innovation in materials development and production. Advances in digital manufacturing, process control, predictive maintenance, and automation can be realized by integration of data analytics and validated models to ensure product quality, optimize operations, enhance productivity, and improve efficiency.
Editors: Donna Guillen, Judy Schneider, and Srikanth Patala
Sponsors: Energy Committee, Additive Manufacturing Committee, and Computational Materials Science and Engineering Committee

Topic: Recycling Silicon and Silicon Compounds

Scope: Silicon and silicon compound recycling is needed for a cleaner and greener environment. These materials can be reused in the manufacturing of solar cells and panels and other industries such as electronic industries. The scope of this special topic is concerned with recycling of all types of silicon, silicon products, and silicon compounds including silicon wafers, silicon poly chunk, IC grade, ingots, IC flakes, etc.
Editor: Shadia Ikhmayies
Sponsor: Recycling and Environmental Technologies Committee

Topic: Thermodynamic Modeling of Sustainable Non-Ferrous Metals Production

Scope: Conventional metallurgical processes were developed when complexity of resources and environmental impacts were not issues. Today, these issues need to be addressed through designing more efficient processes that enable a sustainable future. Papers covering experimental investigations, thermodynamic modeling, metallurgical process optimization, resource efficiency and environmental issues, particularly those pertaining to non-ferrous metallurgical processes, are invited. Manuscripts intended for a broad readership and review papers are especially encouraged.
Editors: Fiseha Tesfaye, Allie Anderson, and Mingming Zhang
Sponsors: Process Technology and Modeling Committee and Recycling and Environmental Technologies Committee

August 2020
Manuscript Deadline: March 1, 2020

Topic: Additive Manufacturing for Energy Applications (By Invitation Only)

Scope: This invited topic will feature manuscripts based on experimental and computational approaches in the following topic areas

- Processing-microstructure-property relationship of AM fabricated materials for structural components in energy sectors
- In-situ sensor development and in-situ processing and characterization
- Advances in AM design methodologies, new material designs and AM techniques

- Modeling and simulations for design of high-performance AM fabricated materials
- Qualification approaches
- Economic advantages: Case studies

Only papers presented at the Additive Manufacturing for Energy Applications II symposium at the TMS 2020 Annual Meeting & Exhibition will be considered for this topic.
Editor: Isabella van Rooyen
Sponsors: Additive Manufacturing Committee and Nuclear Materials Committee

Topic: Additive Manufacturing: Beyond the Beam Technology (By Invitation Only)

Scope: This invited topic will explore the print process and post-print processing variables of non-beam solid-state print technologies, which determine properties, application performance, and economics and enable component functionality. These processes include but are not limited to: binder jetting, material extrusion, filament processing, nano-inkjet printing and sintering.
Editors: Paul Prichard, Peeyush Nandwana, Matt Dunstan, James Paramore, and Kathy Lu
Sponsors: Powder Materials Committee and Additive Manufacturing Committee

Topic: Advanced Processing and Additive Manufacturing of Functional Magnetic Materials

Scope: Papers are invited on advanced processing and advanced manufacturing of functional materials with particular emphasis on magnetic materials. In particular, papers addressing permanent magnets, magnetocaloric materials, soft magnets, magnetic shape memory alloys, and multiferroics are welcome. Additive approaches to similar classes of functional materials are invited as well.
Editors: Scott McCall and Ikenna Nlebedim
Sponsor: Magnetic Materials Committee

Topic: Biologically Induced Corrosion

Scope: Papers in all areas of biologically induced or influenced corrosion are welcome. Examples include microbially induced corrosion, corrosion in biomedical devices, etc.
Editor: Vilupanur Ravi
Sponsor: Corrosion and Environmental Effects Committee

Topic: Metal Matrix Composites: Analysis, Modeling, Observations and Interpretations (By Invitation Only)

Scope: This invitation-only topic will present papers from the symposium Metal Matrix Composites: Analysis, Modeling, Observations and Interpretations, at the TMS 2020 Annual Meeting & Exhibition. The goal of this special topic is to publish papers representing developments in the analysis, modeling, and observations of metal matrix composites.
Editors: T.S. Srivatsan and W.C. Harrigan Jr.
Sponsors: Composite Materials Committee and Mechanical Behavior of Materials Committee

Topic: Metastable Phases and Phase Equilibria (By Invitation Only)

Scope: Invited authors will provide original research submissions on next-generation alloys enabled by the design and control of metastable phases. In these alloys, outstanding properties are achieved through a combination of carefully tailored chemical composition and thermal processing. Examples include metastable austenite in TRIP, TWIP and Q&P steels, beta-stabilized titanium alloys, gamma double prime precipitates in nickel superalloys, high entropy alloys, and spinodal decomposition during aging of aluminum alloys.
Editors: Gregory Thompson, Raj Banerjee, Eric Lass, and Bij-Na Kim
Sponsors: Phase Transformations Committee and Additive Manufacturing Committee

September 2020

Manuscript Deadline: April 1, 2020

Topic: Aluminum: Recycling and Carbon / Environmental Footprint

Scope: This topic covers recycling of aluminum (and its alloys), as well as mitigating the carbon footprint and/or environmental ramifications of both primary and secondary aluminum production.
Editors: David S. Wong and Anne Kvithyld
Sponsors: Aluminum Committee and Recycling and Environmental Technologies Committee

Topic: High Temperature Processing of Complex Ores (By Invitation Only)

Scope: Invited papers only will be published in this topic covering pyrometallurgical processes developed to recover metals from complex ores. The term complex refers to multi-metal sulfide resources, which often present inclusions and intricate structural or alteration patterns. Also included are orebodies such as multi-metal oxide ores that complicate processing due to the diversity of minor elements they contain. This topic will present a state-of-the-art picture of the high-temperature processing of complex ore, from historical to best available technologies.
Editors: Leili Tafaghodi, Camille Fleuriault, and Joseph Grogan
Sponsor: Pyrometallurgy Committee

Topic: Materials Research in Reduced Gravity

Scope: Reduced-gravity experiments can isolate phenomena otherwise obscured in ground-based experiments, leading to new discoveries that can improve materials and processes. Ground-based facilities for reduced-gravity experiments include drop tubes and towers that provide seconds of reduced gravity, aircraft that provide tens of seconds, and suborbital rockets that provide hundreds of seconds. Manuscripts are solicited in all areas of materials research employing reduced gravity, including crystal growth, containerless processing, materials processing and properties, and experimental facilities for materials research.
Editors: Douglas M. Matson, Robert W. Hyers, Michael Sansoucie, Jonghyun Lee, and Shaun McFadden
Sponsors: Process Technology and Modeling Committee and Solidification Committee