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call for papers

JOM **is seeking contributions on the following topics for 2021. For the full Editorial Calendar, along with author instructions, visit www.tms.org/EditorialCalendar.**

September 2021
Manuscript Deadline: April 1, 2021

Topic: Computational Modeling in Pyrometallurgy

Scope: Pyrometallurgical furnace operations are typically very complex in nature and may involve tightly coupled interactions between phenomena from heat transfer, fluid flow, electromagnetics, thermochemistry, phase change, granular media, and more. Exacerbating the difficulties in understanding such phenomena are the extraordinary challenges inherent in performing measurements on pyrometallurgical processes (e.g., extreme conditions limit direct measurements). This topic will aim to cover a variety of contemporary applications of computational modeling in pyrometallurgical science and engineering.
Editors: Quinn Reynolds and M. Akbar Rhamdhani
Sponsor: Pyrometallurgy Committee

Topic: Recovery, Sorting, and Processing of Secondary Aluminum

Scope: This topic covers recycling of aluminum and its alloys, with a specific focus on managing recovery, sorting, and processing for secondary aluminum production. This may include advances in sorting technologies, pre-treatment steps, and various re-melting techniques together with, or in addition to, recovery of by-products from these techniques. Also, holistic approaches for secondary aluminum production are welcomed.
Editor: Anne Kvithyld
Sponsors: Aluminum Committee and Recycling and Environmental Technologies Committee

October 2021
Manuscript Deadline: May 1, 2021

Topic: Corrosion in Heavy Liquid Metals for Energy Systems

Scope: This topic invites papers on studies related to heavy liquid metal (HLM) such as Pb and lead bismuth eutectic compatibility with structural materials including corrosion and liquid metal embrittlement. In addition, technological aspects of HLM technology including chemistry control methods, filtering, in-situ characterization techniques, forced and natural convection methods, and flow measurements are also included in this topic.
Editors: Osman Anderoglu, Alessandro Marino, and Peter Hosemann
Sponsors: Corrosion and Environmental Effects Committee and Nuclear Materials Committee

Topic: Informatics-Enabled Design of Structural Materials

Scope: Informatics-enabled design is a paradigm shift for materials engineering, and has led to many breakthroughs within the last decade. For structural materials, an array of challenges persist due to the need for quantitative evaluation of competing performance metrics across many time and length-scales. This special topic aims at capturing the needs and limitations of informatics toolsets for design of structural materials. We invite articles that highlight recent advances and set the scope for future.
Editors: Jennifer L.W. Carter and Amit K. Verma
Sponsor: Mechanical Behavior of Materials Committee

Topic: Materials for Small Nuclear Reactors and Micro Reactors, including Space Reactors

Scope: Small nuclear reactors, including micro-reactors, small modular reactors, space reactors, and off-grid reactors rely on different materials and manufacturing processes than those in large-scale power plants: molten salts as coolants and fuels, heat-pipes for heat removal, metal hydrides as high-temperature moderators, fuels for higher burnup and accident tolerance, etc. They also require novel structural materials and understanding of material interactions. This special topic focuses on materials research and experimental and modeling/simulation for small nuclear reactors.
Editors: Sven C. Vogel, Raluca O. Scarlat, Aditya P. Shivprasad, and Marisa Monreal
Sponsor: Nuclear Materials Committee

November 2021
Manuscript Deadline: June 1, 2021

Topic: Advanced High-Strength Steels

Scope: Advanced high-strength steels (AHSS) have been widely used in commercial vehicles for decades. New AHSS are being actively researched in academia and industry. This special topic focuses on the latest developments in AHSS, including high-strength low-alloy (HSLA), dual-phase (DP), transformation-induced plasticity (TRIP), complex phase (CP), martensitic, quenched & partitioned (Q&P), medium manganese, TRIP-assisted bainitic ferrite (TBF), press-hardened steel (PHS), twinning-induced plasticity (TWIP), and low density steels.
Editors: M.X. Huang and Ana Araujo
Sponsor: Steels Committee

Topic: Advances in Multi-modal Characterization of Structural Materials

Scope: Progress in the development of instrumentation and workflows that enable the collection of various data modalities have provided novel insights into material behavior. This special topic will focus on the application of varied characterization approaches in both 2D and 3D, across multiple length scales and/or imaging modalities, for structural materials. Papers that focus on the development and application of advanced segmentation and data fusion approaches for quantitative data analysis are also invited.
Editors: Andrew T. Polonsky and Amit Pandey
Sponsor: Advanced Characterization, Testing, and Simulation Committee

Topic: Latest Developments in Manufacturing and Recycling of Refractory Materials

Scope: Renowned for their unique properties, refractory materials have widespread applications in electronic, nuclear, and defense industries. Although powder metallurgy is still the only route for major commercial production, manufacturing and recycling technologies have made great strides in processing of refractory materials. The focus of this special topic includes recent advances in overcoming process challenges or improving material performances. Manuscripts covering the latest experimental and theoretical studies especially focusing on recycling of refractory metals are invited.
Editors: Chai Ren and Ravi Enneti
Sponsor: Refractory Metals and Materials Committee

Topic: Silicon Technologies

Scope: This topic covers silicon production from quartz and carbon to the most important feedstock for crystalline solar cells. Characterization of single-crystalline silicon, silicon defects, and behavior of impurities are included, as well as the use of silicon as a storage material, and use of silicon melt to store and generate energy. Recycling of silicon compounds, solar cells, electronic components, and life-cycle of silicon-related technologies are also covered.
Editors: Shadia Ikhmayies
Sponsors: Recycling and Environmental Technologies Committee and Materials Characterization Committee