



## Mesoscale Simulations for AM Alloys

Guest Editor:

**Dr. Balasubramaniam  
Radhakrishnan**

Oak Ridge National Laboratory,  
Computational Sciences and  
Engineering Division, Oak Ridge,  
TN 37830, USA

Deadline for manuscript  
submissions:

**closed (1 April 2022)**

### Message from the Guest Editor

The special issue will focus on advances in computational approaches, data-driven approaches, and the use of high-performance computing platforms to address the challenges involved in simulating processing-microstructure-property linkages in AM alloys. Specifically, this topic will focus on the following topics: (1) simulating the solidification microstructures and solid-state phase transformations that occur under thermal conditions typical of AM processes for structural, multi-component alloys using either laser or e-beam sources using realistic AM process thermal boundary conditions, (3) post-process heat treatments to optimize structure for meeting specific property requirements, and (4) mesoscale simulations of mechanical response of AM microstructures using crystal plasticity based approaches. The overall goal is to quantify how changes in AM process parameters and/or changes in local cross-sections in an AM component can affect the local microstructure and the local mechanical properties.





an Open Access Journal by MDPI

## Editors-in-Chief

### Prof. Dr. Hugo F. Lopez

Department of Materials Science and Engineering, College of Engineering & Applied Science, University of Wisconsin-Milwaukee, 3200 N. Cramer Street, Milwaukee, WI 53211, USA

### Prof. Dr. Yong Zhang

Beijing Advanced Innovation Center of Materials Genome Engineering, State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing, 30 Xueyuan Road, Beijing 100083, China

## Message from the Editorial Board

Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure – disciplines in the metallurgical field ranging from processing, mechanical behavior, phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

## Author Benefits

**Open Access:** free for readers, with article processing charges (APC) paid by authors or their institutions.

**High Visibility:** indexed within Scopus, SCIE (Web of Science), Inspec, CAPlus / SciFinder, and other databases.

**Journal Rank:** JCR - Q2 (*Metallurgy and Metallurgical Engineering*) / CiteScore - Q1 (Metals and Alloys)

## Contact Us

---

Metals Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland

Tel: +41 61 683 77 34  
[www.mdpi.com](http://www.mdpi.com)

[mdpi.com/journal/metals](http://mdpi.com/journal/metals)  
[metals@mdpi.com](mailto:metals@mdpi.com)  
[X@Metals\\_MDPI](https://twitter.com/Metals_MDPI)