metals

an Open Access Journal by MDPI

IMPACT FACTOR 2.6

CITESCORE 4.9

Numerical Simulation and Data-Driven Modeling of Metallic Materials Formed by Laser Additive Manufacturing

Guest Editors:

Dr. Chaoyue Chen
School of Materials Science and Engineering, Shanghai University, Shanghai 200444, China

Dr. Songzhe Xu
School of Materials Science and Engineering, Shanghai University, Shanghai 200444, China

Deadline for manuscript submissions:
30 September 2024

Message from the Guest Editors

Dear Colleagues,

Additive manufacturing (AM) is well known for its rapid integrated forming ability for complex geometry, and as the AM industry flourishes, it is receiving increasing attention. Unlike traditional casting and other forming techniques, AM involves a rapid nonequilibrium melting and solidification process, which occasionally generates defects, such as pores, deformation, cracks, etc.

Even though significant research and experiments on various alloy systems and AM processes have been carried out to study melting and solidification behavior, some mechanisms remain unclear. In this context, numerical simulation and data-driven/physics-informed machine learning modeling are important approaches to computing the dynamic evolution of multiphysics fields or establishing relationships between process, microstructures, and mechanical properties.

These approaches can help us understand the fundamental principles and rules of AM processes and provide guidance for optimizing these processes and improving product quality.

metals

IMPACT FACTOR 2.6

CITESCORE 4.9

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

mdpi.com/journal/metals
metals@mdpi.com
𝕏@Metals_MDPI