metals

an Open Access Journal by MDPI

IMPACT FACTOR 2.6

CITESCORE 4.9

Fatigue and Fracture Assessment of Additive Manufactured Metallic Materials

Guest Editors:

Prof. Dr. Rui Hu
State Key Laboratory of Solidification Processing, Northwestern Polytechnical University, Xi'an 710072, China

Dr. Xian Luo
School of Materials Science and Engineering, Northwestern Polytechnical University, Xi'an 710072, China

Deadline for manuscript submissions:
31 March 2025

Message from the Guest Editors

Dear Colleagues,

Additive manufacturing technology is increasingly demonstrating significant potential in the field of material processing. Unlike traditional casting or forging materials, additive manufacturing metallic materials and alloys exhibit unique behavior in terms of fatigue and fracture properties. During the additive manufacturing process, alloy materials undergo special thermal cycling, resulting in microstructures with distinctive characteristics such as grain refinement, anisotropy, residual stress, and microscopic cracks. While grain refinement helps to enhance the strength and toughness of the alloy, it may also increase the alloy's susceptibility to crack initiation. Therefore, optimizing process parameters and post-processing strategies for additive manufacturing and reducing or eliminating defects are crucial for improving the fatigue properties of additive manufacturing alloys.

In this Special Issue, we welcome articles that focus on the effects of microstructures on the fatigue properties and lifetimes of additive manufacturing Metallic Materials, the behavior and mechanisms of fatigue crack initiation and propagation, and fatigue prediction models.

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