

Special Issue

Fatigue Behavior of Metals: Theoretical Analysis and Experimental Tests

Message from the Guest Editor

The increasingly complex challenges of mechanical design, due to the ever-higher standards of the safety, reliability, and performance levels required for components and systems, cannot ignore the fundamental issues related to the prediction of a component's duration, the resistance to the operating load, and the estimated damage condition. The basic factors that cause fatigue is estimated contributes to approximately 90% of all mechanical service failures. The expansion in using a greater variety of metal alloys, increased by the development of new advanced manufacturing technologies, further enhances the key role of the study of fatigue behavior in mechanical design. This Special Issue aims to promote the discussion and provide an insight into a phenomenon of the mechanical behavior of metallic materials that is well-known, but which also maintains great relevance because of its complexity, due to the variety of factors that influence fatigue behavior and failure mechanism (structure of material, shape, state of the surface, thermal and environmental operating conditions, loading history and frequency, stress state and concentration factors, etc.).

Guest Editor

Prof. Dr. Guido La Rosa

Dipartimento di Ingegneria Civile e Architettura, Università degli Studi di Catania, 95123 Catania, Italy

Deadline for manuscript submissions

closed (31 December 2022)



Metals

an Open Access Journal
by MDPI

Impact Factor 2.5
CiteScore 5.3



mdpi.com/si/91517

Metals
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
metals@mdpi.com

[mdpi.com/journal/
metals](https://mdpi.com/journal/metals)





Metals

an Open Access Journal
by MDPI

Impact Factor 2.5
CiteScore 5.3



[mdpi.com/journal/
metals](https://mdpi.com/journal/metals)



About the Journal

Message from the Editor-in-Chief

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.

Editor-in-Chief

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

Author Benefits

High Visibility:

indexed within Scopus, SCIE (Web of Science), Inspec, Ei Compendex, CAPus / SciFinder, and other databases.

Journal Rank:

JCR - Q2 (Metallurgy and Metallurgical Engineering) /
CiteScore - Q1 (Metals and Alloys)

Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 18.7 days after submission; acceptance to publication is undertaken in 2.7 days (median values for papers published in this journal in the second half of 2025).