

Special Issue

Mechanical Behavior of Metallic Materials in Extreme Environments

Message from the Guest Editor

Many technological and industrial fields, e.g., the manufacturing, machining, aerospace, and construction sectors, operate in extreme environments. Metals are used under challenging temperature, radiation, corrosion and several loading conditions (high strain-rate, fatigue, creep). Extreme environments strongly affect the mechanical responses that occur.

Understanding the influence of extreme conditions on the mechanical behaviour of metals is a challenge in materials research that is of capital importance to ensure the safety and functionality of systems and applications. For this Special Issue, we aim to include a collection of reviews and research articles on topics from the field of metal mechanical behaviour under extreme environments. This includes research related to the strength, ductility, and fracture of metals across a wide range of temperatures, from cryogenic to high, as well as studies on fracture and fatigue and strain-rate sensitivity at low to high strain rates associated with temperature and radiation. We welcome studies on the above subjects using either experimental or theoretical approaches.

Guest Editor

Prof. Dr. Ezio Cadoni

DynaMat SUPSI Laboratory, University of Applied Sciences and Arts of Southern Switzerland, 6850 Mendrisio, Switzerland

Deadline for manuscript submissions

closed (31 March 2022)



Metals

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MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
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About the Journal

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.

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

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