

Special Issue

Solidification Microstructure Evolution and Formation in Metallic Alloys: Casting, Welding and Additive Manufacturing

Message from the Guest Editor

Metal casting has been employed throughout the last few millennia of human history, while other metal-solidification-related techniques such as soldering, brazing, and welding have become indispensable manufacturing methodologies. Solidification is also the underlying process behind modern metal additive manufacturing. Thermal and chemical interactions during solidification largely control the metallic alloy microstructure evolution and formation. Thus, the solidification process significantly dictates the strength, properties, and resilience of the products. Therefore, an improved understanding of metal solidification processes is crucial to enhance solidification processing capacities. This Special Issue's scope includes studies of solidification microstructure evolution and formation in metal casting, welding, and additive manufacturing. It aims to cover a broad perspective on recent advances in metal and alloy solidification, ranging from fundamental concerns such as nucleation and growth to engineering aspects such as process control.

Guest Editor

Dr. Wajira Mirihanage

Department of Materials, The University of Manchester, Manchester M13 9PL, UK

Deadline for manuscript submissions

closed (31 August 2022)



Metals

an Open Access Journal
by MDPI

Impact Factor 2.5
CiteScore 5.3



mdpi.com/si/103649

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).