

Special Issue

Microstructure Control and Property Enhancement in Non-Ferrous Metal Forming Process

Message from the Guest Editor

The growing demand for high-performance lightweight metals in aerospace, automotive, and electronics industries has driven significant advancements in non-ferrous metals. Central to these advancements is the precise control of microstructure during key manufacturing stages—casting, forming, and heat treatment. Therefore, mastering these processes and elucidating their relationship with microstructural evolution are essential for tailoring material properties and uncovering the underlying mechanisms governing performance.

This Special Issue aims to establish a dedicated forum for advancing research on the manufacturing of non-ferrous alloys. Topics of interest include, but are not limited to:

- Microstructure evolution and control during solidification and casting processes
- Thermo-mechanical processing strategies for microstructure design in forming
- Heat treatment innovations for tailored phase transformations and properties
- Synergistic effects of combining these processes;
- Advanced characterization and modeling linking multi-stage processing to final performance.

Guest Editor

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Deadline for manuscript submissions

31 August 2026



Metals

an Open Access Journal
by MDPI

Impact Factor 2.5
CiteScore 5.3



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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

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