

Special Issue

Modeling Thermodynamic Systems and Optimizing Metallurgical Processes

Message from the Guest Editor

In this Special Issue, articles that focus on the development of a database for thermodynamic and thermophysical properties, advanced methods for database development, applications of thermodynamics and/or kinetics in metallurgical, and material process design are highly sought after. Therefore, this Special Issue will cover, but is not limited to, the following fundamental and applied research topics:

Thermodynamic modeling for metallic and oxide systems;

Diffusion modeling for metallic and oxide systems;

Viscosity modeling for slag and liquid metal;

Machine learning on thermodynamic modeling;

Phase diagram measurements;

Diffusion measurements;

Thermodynamic property measurements;

Thermodynamic calculations;

Solidification;

Metal extraction;

Metal refinement;

Recycling;

Metallurgical process simulation;

Material process simulation;

Material design;

Corrosion.

Guest Editor

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Deadline for manuscript submissions

30 September 2025



Metals

an Open Access Journal
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Impact Factor 2.5
CiteScore 5.3



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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

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Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 18 days after submission; acceptance to publication is undertaken in 2.6 days (median values for papers published in this journal in the first half of 2025).