

Special Issue

Thermodynamic Assessment of Alloy Systems

Message from the Guest Editors

Knowledge surrounding phase diagrams and phase equilibria plays a crucial role in the development, manufacture, and processing of materials. The measurement of phase diagrams is generally time consuming and expensive, with the establishment of complex phase diagrams of real multicomponent and multiphase materials for practical applications proving difficult. The CALPHAD (calculation of phase diagram) approach provides a strategy for the development of highly reliable thermodynamic databases for the assessment of binary and ternary subsystems, which in turn allows for the prediction of phase diagrams and thermodynamic properties for multicomponent systems corresponding to real materials. With the development of novel materials and processes, there is a constantly increasing demand for accurate thermodynamic databases in the academic and engineering communities. This Special Issue aims to present the results of scientific and experimental investigations concerning, for example, phase equilibria and diagrams, theoretical calculations of thermodynamic properties, thermodynamic assessments of metals and alloys, as well as applications of thermodynamic calculations.

Guest Editors

Prof. Dr. Weibin Zhang

Key Laboratory for Liquid-Solid Structural Evolution and Processing of Materials (Ministry of Education), Shandong University, Jinan 250061, China

Prof. Dr. Yuan Yuan

National Engineering Research Center for Magnesium Alloys, College of Materials Science and Engineering, Chongqing University, Chongqing 400000, China

Deadline for manuscript submissions

closed (25 May 2025)



Metals

an Open Access Journal
by MDPI

Impact Factor 2.5
CiteScore 5.3



mdpi.com/si/161579

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, CAPlus / 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).