Special Issue

Separation, Reduction, and Metal Recovery in Slag Metallurgy

Message from the Guest Editors

This Special Issue highlights cutting-edge strategies to unlock the hidden value of metallurgical slags, focusing on selective separation, efficient reduction, and high-yield recovery of metals to drive sustainability in metal production. The issue prioritizes scalable, energy-efficient technologies that bridge lab innovations to industrial applications. Core topics include, but are not limited to, the following themes:
1. Advanced Separation:
(1) Selective techniques
(2) Crystallization control

2. Reduction and Recovery:
(1) Low-carbon reduction
(2) Hybrid extraction

3. Process Optimization

4. Sustainability Synergy:
Linking metal recovery with slag valorization to achieve zero-waste metallurgy.

This issue invites contributions that bridge laboratory-scale breakthroughs with industrial scalability. By integrating multi-disciplinary insights, it aims to redefine slag as a strategic resource in the transition toward green metallurgy.

Guest Editors

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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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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).

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