Special Issue

Metal Extraction and Smelting Technology

Message from the Guest Editor

Metal extraction and smelting technologies are fundamental to global economic growth. As the industry evolves under the combined influence of economic demands, environmental regulations, and digital transformation, emerging innovations are increasingly oriented toward high efficiency, low environmental impact, and intelligent automation. As a critical branch of metallurgy, these technologies focus on the recovery of valuable metals from both primary ores and secondary scrap sources. This Special Issue invites contributions covering cutting-edge advancements in metal extraction, refining, and product development from mineral and recycled resources. We seek original research articles, reviews, and perspectives that explore the following:

- Novel extraction and purification methods (e.g., bioleaching, electrochemical recovery, solvent extraction);
- Sustainable smelting processes (e.g., low-carbon pyrometallurgy, slag valorization);
- Intelligent and digitalized solutions (e.g., AI-driven process optimization, smart refining);
- Circular economy approaches (e.g., urban mining, critical metal recovery from e-waste).

Guest Editor

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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.

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