

Special Issue

Recent Advances in Metal Ion Separation

Message from the Guest Editors

Recent technological advancements have driven increased demand for metals, whether through extraction or recovery. A key step in metal production is separating metals from aqueous solutions obtained via ore leaching or waste recycling. Adsorption is an effective method for metal recovery or removal, offering excellent process operability and reusability after regeneration. Traditional sorbents like clays/zeolites, activated carbon, and resins have been widely used, while advanced sorbents—modified inorganic/organic materials, carbons/biochar, biosorbents, metal–organic frameworks, polymers, magnetic sorbents, hydrogels, and nanosorbents—have shown great potential.

This Metals Special Issue invites reviews and articles on metal ion separation, including sorbent preparation, characterization, applications, mechanisms, and theoretical studies. Topics include:

Metal ion separation techniques;
Advanced sorbent synthesis and functionalization;
Adsorption mechanisms and metal–sorbent interactions;
Process design, automation, and miniaturization;
Novel sorbent applications.

This Special Issue aims to outline the current state of the art in the area of separation of metal ion.

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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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