Special Issue

New Science-Based Concepts for Enhancing Efficiency in Battery Recycling

Message from the Guest Editors

In this Special Issue, we welcome contributions that address novel processes and underlying mechanisms that are critical to improving battery recycling. Key areas of interest include automated disassembly and sensor-based sorting, advanced shredding and classification techniques, thermal conditioning, and innovations in hydro- and pyrometallurgical processing. We will not focus on consumer behaviour, collection, legal and regulation issues, or market development. We are also particularly interested in research into the safety aspects of recycling processes, post-mortem analysis of cell chemistry, and optimisation models to improve overall recycling efficiency. As we move towards a circular economy, the focus on minimising waste streams and maximising the reuse and recycling of critical materials such as lithium is becoming increasingly important. This Special Issue aims to explore strategies that optimise the interfaces between mechanical, thermal, and metallurgical treatments, ultimately contributing to a more sustainable future for battery technology.

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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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