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Special Issue Reprint

Waste Valorization

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This Special Issue focuses on innovative methods for valorizing waste through the recycling and recovery of critical and strategic metals (REEs, Co, Cu, Ni, Li, Ag, Al, Ti, Si). With rising demand from high-tech and green energy sectors, sustainable recovery and waste management are essential. Key topics include, but are not limited to, the following:

Extraction and Purification processes: Hydrometallurgical techniques for recovering critical and strategic metals from industrial by-products, mineral residues, and EoL products. **Recycling Technologies:** Cutting-edge approaches to enhance the efficiency and cost-effectiveness of recycling critical and strategic metals from waste streams such as sludge, redmud, tailings, slag, and EoL products, utilizing pyrometallurgical, hydrometallurgical, and electrometallurgical methods. **Thermodynamical Modeling and Process Simulation:** In-depth studies on the thermodynamical aspects of metal extraction processes, including modeling and simulation techniques, to optimize and tailor the recycling techniques. **Economic and Environmental benefits:** Comprehensive assessments of the potential economic gains and environmental impacts of critical/strategic metal recovery, fostering circular economy and sustainability. **Case studies:** Practical applications in the valorization of mineral waste and the extraction of critical and strategic raw materials.

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