Special Issue

New Extraction Processes for Critical Metals from Non-Metallurgical Resources

Message from the Guest Editors

Currently, we are witnessing a rapidly increasing number of initiatives contributing to a sustainable energy transition. However, in many cases, there is a limited supply of critical metals to support the future demand for manufacturing devices for electric transport, green energy production, and the ever-increasing consumption of communication and entertainment gadgets. This Special Issue invites submissions of original scientific research associated with new extractive processes, based on the use of complex raw materials as sources for recovering critical metals, which are strongly guided by accurate thermodynamic, kinetic, and/or transport phenomena modeling. This Special Issue focuses on the following topics:

- The study of equilibrium conditions to promote the selective recovery of critical metals;
- Simulation and optimization of operational conditions based on kinetic modeling;
- Transport phenomena simulations to understand the behavior of proposed equipment for metal extraction under different process scales;
- Fundamental research based on the application of either density functional theory or molecular dynamics computations.

Guest Editors

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About the Journal

Message from the Editor-in-Chief

Minerals welcomes submissions that report basic and applied research in mineralogy. Research areas of traditional interest are mineral deposits, mining, mineral processing and environmental mineralogy. The journal footprint also includes novel uses of elemental and isotopic analyses of minerals for petrology, geochronology and thermochronology, thermobarometry, ore genesis and sedimentary provenance. Contributions are encouraged in emerging research areas such as applications of quantitative mineralogy to the oil and gas, manufacturing, forensic science, climate change, geohazard and health sectors.

Editor-in-Chief

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manuscripts are peer-reviewed and a first decision is provided to authors approximately 18.2 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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