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Critical Minerals and Associated Elements in Mine Effluent and Treatment Residuals: Management Strategies and Technologies for Resource Recovery

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Message from the Guest Editors

This Special Issue calls for research on understanding the geochemical transformations and engineering techniques related to the enrichment and behaviors of CMs from one type of unconventional resource, mine waste streams (e.g., coal or metal mines) and treatment precipitates (e.g., passive or active treatment systems).

We welcome submissions to this Special Issue that incorporate one or more of the following: (1) field and/or laboratory studies of CMs behavior and hydrobiogeochemical interactions in mine drainage in treatment systems; (2) advanced characterization to improve CMs quantification and that leads to improved understanding of metal mineral binding mechanisms; (3) geochemical modeling of equilibrium and kinetics of CMs, concentrating on mechanisms such as sorption and co-precipitation; and (4) novel mine drainage treatment strategies that improve CMs enrichment, separation, and extraction processes while reducing environmental impacts and treatment costs. Open discussions on resource management, social–economic evaluation, as well as sustainability and carbon accounting are also encouraged.

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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.

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