Special Issue

Porphyry Cu-Au-Mo Deposits: Exploration, Resource Assessment, and Critical Mineral Potential of Ore and Waste

Message from the Guest Editors

Porphyry deposits represent significant resources of copper, gold, and molybdenum, and are viewed as critical exploration targets for low-grade, high-tonnage mining operations. Advanced exploration tools including remote sensing and geophysical techniques for exploring under cover provide key information for prospect targeting and mineral resource assessment. Although some porphyry deposits have produced by-product critical minerals such as Re, Te, and PGMs, these are typically not reported or recovered. Available data on the nature and distribution of critical minerals in porphyry ores and tailings are scarce. The high tonnages of porphyry deposits generate huge volumes of waste rock and tailings. Consequently, characterisation and reprocessing of existing surface waste materials at active and inactive mines have the potential to transform waste into a resource by providing new sources of critical metals and facilitating rehabilitation. For this Special Issue, we welcome studies that contribute to all these aspects of porphyry deposits, including reviews of critical mineral potential of porphyry ore and waste and processing technologies.

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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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