Special Issue

Magmatic-Hydrothermal Fe Deposits and Affiliated Critical Metals

Message from the Guest Editors

Iron is an important resource for human life. Iron resources are heterogeneously distributed in different countries with variable deposit types, deposit scales, and ore grades. There are different types of Fe deposits, including the magmatic, magmatic-hydrothermal, sedimentary, and metamorphic deposits. Among these, magmatic-hydrothermal Fe deposits such as iron oxide–copper–gold (IOCG), iron oxide–apatite (IOA), skarn Fe, and volcanic-hosted Fe deposits constitute major Fe resources in some countries, e.g., Kiruna-type IOA for Sweden and skarn and volcanic-hosted for China. In addition to iron resources, magmatic-hydrothermal Fe deposits also host economic resources of critical metals. For example, IOCG provides U and REE, whereas IOA provides REE. Skarn and volcanic-hosted Fe deposits are associated with critical metals such as Ga, In, Co, and Ni. Although extensive studies have been carried out on these deposits, there are still some important aspects unresolved, including detailed ore-forming process, the enrichment mechanism of iron and associated critical metals and their genetic relationship, and the occurrence of critical metals.

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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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