



minerals



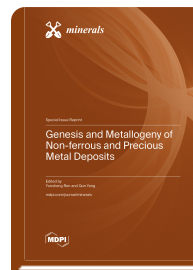
Special Issue Reprint

Genesis and Metallogeny of Non-ferrous and Precious Metal Deposits

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Edited by
Yunsheng Ren
Qun Yang

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The Special Issue in *Minerals* systematically synthesizes cutting-edge research on the mineralization theory of non-ferrous and precious metal deposits within the field of economic geology. Focusing on deposit types such as gold, lead–zinc, copper–molybdenum, and tin, the research employs multidisciplinary approaches across multiple scales, including isotopic geochemical tracing, the thermodynamic analysis of fluid inclusions, high-precision geochronology, and in situ microanalysis of minerals, to elucidate the mineralization geodynamic setting, deep-seated material–energy transfer processes, fluid evolution, and mechanisms of anomalous metal enrichment. The Special Issue addresses four key theoretical issues: 1) the role of crust–mantle interaction in the initial enrichment of precious metal elements; 2) the physicochemical controls on metal differentiation and precipitation during the evolution of magmatic–hydrothermal systems; 3) the driving mechanisms of multi-stage mineralization through the coupling of tectonic, fluid, and rock reactions; and 4) the role of surface-generated and deep-generated superimposed mineralization effects in the formation of complex deposits. These investigations not only establish a comprehensive theoretical framework for multi-element syngenetic mineralization but also advance the development of mineralization system models within the context of plate tectonics. Furthermore, they provide critical scientific insights for refining the genetic classification of metal deposits and enhancing the theoretical foundation for predicting global mineralization patterns.



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