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Magmatic-Hydrothermal Fe Deposits and Affiliated Critical Metals

Guest Editors:

Dr. Xiaowen Huang
Institute of Geochemistry
Chinese Academy of Sciences,
Guiyang 550001, China

Dr. Xinfu Zhao
School of Earth Resources, China
University of Geosciences, Wuhan
430079, China

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Message from the Guest Editors

Dear Colleagues,

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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Editor-in-Chief

Prof. Dr. Leonid Dubrovinsky
Bayerisches Geoinstitut,
University Bayreuth, D-95440
Bayreuth, Germany

Message from the Editor-in-Chief

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Minerals Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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