Special Issue

Advances in the Applications of Mössbauer Spectroscopy for Studies of Iron-Bearing Minerals

Message from the Guest Editor

Metals, including iron, occupations of different crystallographic sites, and their redistributions with temperature are also very important in order to analyze the thermal history of minerals. Various extreme factors affecting terrestrial and extraterrestrial iron-bearing minerals, namely, high pressure, heating and reheating, cooling rate, impacts, etc., lead to some variations in the iron local microenvironments. 57Fe Mössbauer spectroscopy is one of the most sensitive physical techniques for the study of various iron-containing materials, including minerals. This technique permits analyzing the 57Fe hyperfine parameters (isomer shift, quadrupole splitting/quadrupole shift, magnetic hyperfine field), the iron valence/spin states, dynamics of 57Fe, relative iron contents in different sites, including iron partitioning variations, and in the minerals' mixture, the 57Fe local microenvironments and their transformations, etc. This Special Issue aims to present reviews and original research papers in the field of Mössbauer spectroscopy of various iron-bearing terrestrial and extraterrestrial minerals to demonstrate advances in this technique.

Guest Editor

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Deadline for manuscript submissions

closed (31 August 2023)

Minerals

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Impact Factor 2.2
CiteScore 4.4

mdpi.com/si/153425

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About the Journal

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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