

Special Issue

Olivine and Its High-Pressure Polymorphs, with Applications in Earth Sciences

Message from the Guest Editor

Olivine and its high-pressure polymorphs dominate the Earth's upper mantle and mantle transition zone. Their physical and chemical features and geological behaviors account for the major seismic velocity discontinuities in the region, control the magmatic process of the mantle, and set important constraints on the crustal-level evolution of the mantle-derived magmas. This Special Issue will focus on recent progress on the physical and chemical properties of olivine and its high-pressure polymorphs, with emphasis on the geological applications. Studies in the broad fields of phase transition, phase equilibrium, element partition, crystal chemistry, elastic behavior, rheological measurement, vibrational feature, transportation property, etc., are most welcomed. Contributions of high-pressure experimental investigation, theoretical work, and field study are all encouraged. The aim of this Special Issue is to bring together researchers from different disciplines to push forward our understandings of the mantle structure, its magmatic process, and its geodynamic evolution.

Guest Editor

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Deadline for manuscript submissions

closed (29 February 2020)



Minerals

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Impact Factor 2.2
CiteScore 4.4



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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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manuscripts are peer-reviewed and a first decision is provided to authors approximately 18.2 days after submission; acceptance to publication is undertaken in 2.6 days (median values for papers published in this journal in the first half of 2025).