

Special Issue

Minerals and Solids at High Temperature and High Pressure: Equations of State and Thermodynamics

Message from the Guest Editors

Mineral physics studies provide key knowledge on thermodynamic properties of constituents of the Earth's and planetary interiors. Equations of state (EoS) remain a resourceful and powerful tool to model and evaluate the thermodynamic behaviors of any physical–chemical system. EoS characterizes the state of matter of a material under a given set of physical conditions and may be used to describe gases, fluids, fluid mixtures, and solids. In mineral physics, an EoS is used to determine how the volume (or density) of a material vary as a function of pressure and temperature. It reflects the atomic structure, chemical bonding, and stability of a material. This information, combined with geophysical and geochemical observations, helps to constrain the structure and dynamics of the Earth and other planets. This Special Issue aims to include a representative group of experimental and theoretical papers in the field of equations of state and thermodynamic properties of minerals (as well as melts, fluids, and rocks) at high pressures and temperatures.

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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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Rapid Publication:

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).