Special Issue

Characterization of Geological Material at Nano- and Micro-scales

Message from the Guest Editors

Geological materials are studied across a wide range of length scales, from kilometres down to sub-nanometres. While each scale provides valuable insights, understanding these materials at the nano- and micro-scales is particularly critical. This is because properties and behaviours observed at larger scales are governed by characteristics at smaller scales. In this context, we dedicate this Special Issue to the characterisation of geological materials at the nano- and micro-scales. This Special Issue aims to highlight recent advances and innovative approaches in the characterization of geological materials. We welcome studies using conventional analytical and imaging techniques, such as X-ray diffraction (XRD), electron diffraction, neutron diffraction, scanning electron microscopy (SEM), transmission electron microscopy (TEM), optical microscopy, and X-ray micro-CT scanning. We also encourage the application of new methods and techniques, including artificial intelligence (AI)-based approaches. Laboratory experiments and numerical simulations based on model or natural materials are also strongly encouraged.

Guest Editors

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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.

Editor-in-Chief

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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).

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