



Mineral Extraction from the Mineral Microbiome

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Message from the Guest Editors

Dear Colleagues,

All minerals used by humans have been taken from the Earth's crust using methods fundamentally unchanged over millennia. Rocks are found that contain high concentrations of metals and broken open, the ore minerals are concentrated, the metals are extracted from the ores and then purified. While more effective machines, explosives, and chemicals have been steadily developed since the industrial revolution, the use of biotechnology in mining has been restricted to variations of the bioleaching occurring naturally in leach pits for hundreds of years. Biotechnology is a relative newcomer to mining compared to technologies born of innovations in the physical and chemical sciences that are well established with proven low risk thresholds [...]. With these new tools, the mineral microbiome can be explored for novel biological structures and systems that have evolved to interact with specific minerals and metal ions. The result will be a much deeper understanding of the mineral microbiome, one that could lead to paradigm-changing methods of mineral extraction. The dissemination of these possibilities is the motivation for this Special Issue.





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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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