

## Special Issue

# Mineralogy of Microbially and Enzymatically Induced Carbonate Precipitates

### Message from the Guest Editors

Microbially and enzymatically induced carbonate precipitation (MICP and EICP) are biomineralization processes that occur in natural environments and in engineered systems through several mechanisms, including urea hydrolysis and the oxidation of organic matter either under aerobic conditions or through denitrification, iron reduction, and sulfate reduction. MICP and EICP have found applications in the alteration of porous media, such as the remediation (fixation) of metal-contaminated soils, improving the mechanical properties of soils, the reduction of the porosity and/or permeability of granular materials, the protection and repair of concrete and cement structures, and the conservation of building stone and statuary. Despite extensive studies on the application of MICP and EICP in porous media, limited attention has been paid to the mineralogy of the precipitates and its effect on the level of alteration. The mineralogy of the precipitates in porous media can be affected by several factors including temperature, pore fluid chemistry, reaction rates, the mineralogy of the porous materials, and MICP and EICP solution ingredients.

---

### Guest Editors

Dr. Hamed Khodadadi Tirkolaei

Prof. Satoru Kawasaki

Prof. Liang Cheng

Prof. Leon van Paassen

---

### Deadline for manuscript submissions

closed (10 March 2022)



## Crystals

---

an Open Access Journal  
by MDPI

---

Impact Factor 2.4  
CiteScore 4.2



[mdpi.com/si/80290](https://mdpi.com/si/80290)

*Crystals*  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
[crystals@mdpi.com](mailto:crystals@mdpi.com)

[mdpi.com/journal/  
crystals](https://mdpi.com/journal/crystals)





# Crystals

---

an Open Access Journal  
by MDPI

---

Impact Factor 2.4  
CiteScore 4.2



[mdpi.com/journal/  
crystals](https://mdpi.com/journal/crystals)



## About the Journal

### Message from the Editor-in-Chief

Welcome to *Crystals*, the journal dedicated to the fascinating world of crystallographic research! Crystals are more than mere decorative elements; they hold the key to understanding the fundamental structure of matter. Our mission is to explore the crucial significance of this research across various fields. From medicine to technology, chemistry to geology, crystals play a vital role. Their structure provides insights into new advanced materials, innovative drugs, and groundbreaking technologies. Through *Crystals*, we delve into the microscopic world to discover solutions that will shape the future. Join us on a journey through the *Crystals*, where science merges with beauty and innovation.

---

### Editor-in-Chief

Prof. Dr. Alessandra Toncelli  
Department of Physics, University of Pisa, 56126 Pisa, PI, Italy

---

### Author Benefits

#### Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

#### High Visibility:

indexed within Scopus, SCIE (Web of Science), Inspec, CAPIus / SciFinder, and other databases.

#### Journal Rank:

JCR - Q2 (Crystallography) / CiteScore - Q2 (Condensed Matter Physics)