



## **Working Group Biominerals and the Environment:**

### **Second report August 2024**

The WG-BME Board: Giovanni DE GIUDICI (Chair), Kevin ROSSO (Vice Chair), Juraj MAJZLAN (Vice Chair) and Karen HUDSON-EDWARDS (Secretary).

During this second year, the WG Biomineral and Environment has continued the activity by enlarging the WG membership. The WG now comprises the following colleagues from many countries:

Andreas Kappler (Germany); Juan Liu (China); Lucian Staicu (Slovenia); Francesco di Benedetto (Italy); Eric van Hullebusch (France); Pupa Gilbert (USA); Jonathan Lloyd (UK); Łukasz Kruszewsk (Poland); Karim Benzerara (France); Juan Liu (china); Julie Cosmidis (UK); Maria Dittrich (Canada);

WG board and members are expected to help plan or lead activities to promote BME topics, such as organizing symposia or journal special issues. The main activities of the WG were:

- **IMA Lyon 2022-** session Biominerals and environmental mineralogy- Convenors: Giovanni De Giudici, Kareen Hudson-Edwards, Juraj Majzlan, Kevin Rosso.
- **EMC Dublin 2024**, Session: “Biominerals and environment”. Convenors: Giovanni De Giudici, Kareen Hudson-Edwards, Juraj Majzlan, Kevin Rosso.
- **Goldschmidt 2024 Chigaco** “Biomineralization and the environment: Observations, correlations, and proxies to reveal past, present, and future responses to changing climates”, Pupa Gilbert, Maria Cristina Castillo Alvarez, Kevin M. Rosso, Giovanni De Giudici
- 
- Summer School “**Biomineral and Environment**”, Italy 5-8 September 2023 see leaflet attached), 25 students attending the school, 6 WG members teaching.
- **IAGC 3 conference**, Cagliari 16 – 21 June 2025, two sessions on Biominerals and the environment

- **Workshop on Biominerals**, 30 June – 4 July 2025, Tübingen Germany.

Ongoing activity:

Devising summer schools, developing editorial projects and proposing workshop symposia on the following topics (list not exhaustive):

- Bioinspired materials alternatives to cement and concrete: microbially precipitated minerals (CaCO<sub>3</sub>, others) as biomaterials
- Sustainable mine technologies: biometallurgy
- Biominerals and environmental resilience
- Biominerals used to stabilizing carbon in soils and sediments,
- Building material restoration (e.g. limestone)

Editorial project: we are evaluating to advertise our WG and implement biomineral literature with a state-of-the-art paper or a special issue. During the next 6 months we expect to further enlarge our WG and define a detailed editorial plan. WG Vice-Chairman Rosso was recently appointed to the Editorial Board of the new Elsevier journal Geo-Bio Interfaces, sponsored by MinSoc, which could serve as an opportunity for a special issue on our WG topics.

We copy at the end of this report the WG overview and the first invite to the next workshop in Tübingen (Germany).

On the behalf of the WG board

Giovanni De Giudici

Chairman of the WG Biomineral and The Environment

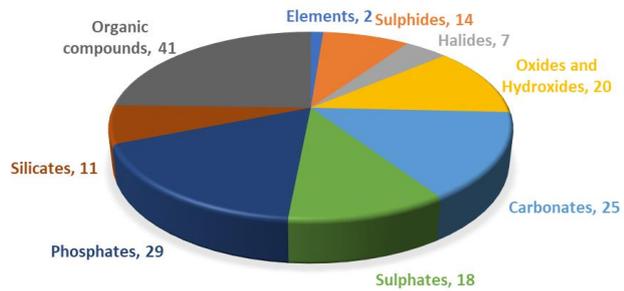
- **WG Overview:**

**Biominerals: a continuously growing family**

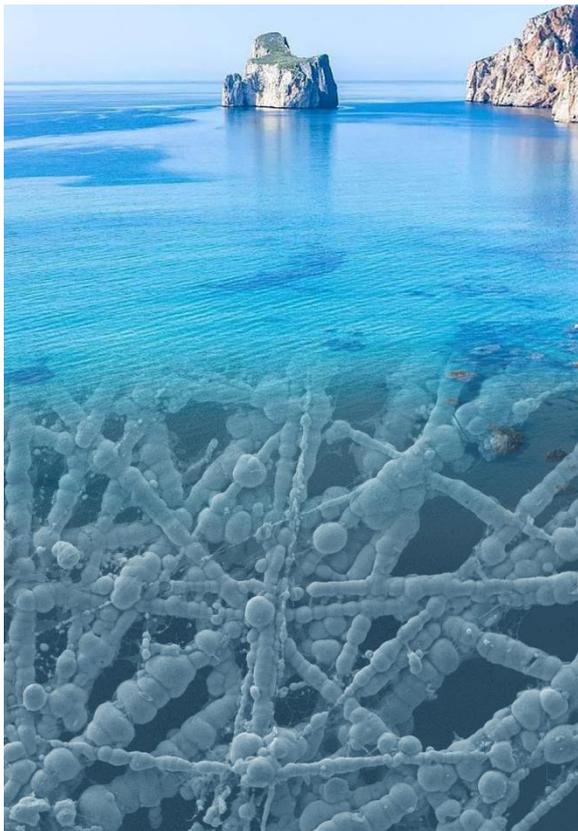
Biominerals are the product of an organism's activity leading to mineral formation within the cellular space or in the space surrounding the organism. In the last decades biominerals have received growing interest from a large interdisciplinary scientific community.

Actually, biominerals are known from the geological record to play a pivotal role in biogeochemical cycles of elements.

Thus, understanding biomineralization processes in widely different environments helps us to understand environmental changes induced by anthropic activities, as well as the environment's resiliency. Moreover, they offer diverse examples to devise useful biobased materials and allow the development of technologies for environmental sustainability.



**Working Group Biominerals and The Environment** was created around the concept that **biominerals, in all their diversity of forms, are central to environmental function and human activities in the environment.**



However, the community of specialist researchers in this topical area currently lack a forum for information exchange to discuss and promote this science. It is the charter of the WG-BME to bridge this gap by rallying a set of enthusiastic leaders from the community that can help promote relevant research, both basic and applied, and foster dissemination more broadly. The members of the WG act on a voluntary basis and participate with a collaborative approach to pursue said aim.

For info write to [bio-enviro-office@mineralogy-ima.org](mailto:bio-enviro-office@mineralogy-ima.org)

WG-BME Board: Giovanni DE GIUDICI (Chair), Kevin ROSSO (Vice Chair), Juraj MAJZLAN (Vice Chair) and Karen HUDSON-EDWARDS (Secretary).

Members: Andreas Kappler (Germany); Juan Liu (China); Lucian Staicu (Slovenia); Francesco di Benedetto (Italy); Eric van Hullebusch (France); Pupa Gilbert (USA); Jonathan Lloyd (UK); Łukasz Kruszewsk (Poland)

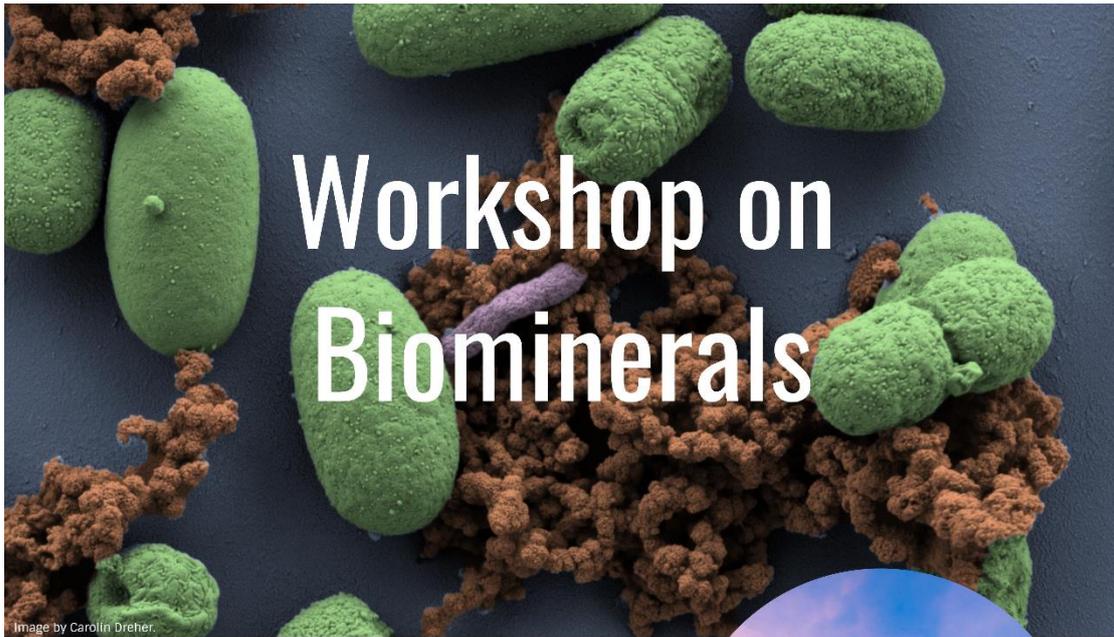


Image by Carolin Dreher.

# Workshop on Biominerals

30 June-04 July (2025)  
University of Tuebingen  
Germany



- For international PhD students with interest in Geomicrobiology, Environmental Sciences and Astrobiology
- Invited speakers will present state-of-the-art techniques and their expertise in biominerals.
- Specialized hands-on sessions to provide participants with practical experience included.

**More information coming soon!**

