

Bavarian State Collection for Mineralogy

Mineralogische Staatssammlung München (MSM)



Homepage: www.mineralogische-staatssammlung.de

Governance

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Forschung

Biom mineralization is a research focus of the Bavarian State Collection for Mineralogy (MSM). Among other things, the structure of mineralized tissues and their mechanical properties are investigated. This enables researchers to draw conclusions about the geological or archaeological past.

Mineralized tissues such as bones, shells or teeth not only play an important role in biology and medicine, they are also the material carriers of the fossil record about the development of life on Earth and its environmental conditions. This possibility of "reconstructing the past" by examining material objects such as bones is equally important in relation to anthropological, archaeological and forensic medicine issues. Recently, biomaterials have also served as prototypes for the development of new, energy-efficient and environmentally compatible lightweight materials. This line of work is a branch of biomimetics.

Another focus at the MSM is the study of rocks of the Earth's mantle (ophiolites, mantle xenoliths) and the raw materials found therein (e.g., platinum group elements, chromium ores). But also the investigation of meteorites, especially those originating from Mars, is of particular importance at the Collection. Their investigation allows conclusions to be drawn about our neighboring planet and its formation, but also about the early development of our Earth and our planetary system.

The working group of the MSM is also one of the few research groups worldwide that received material from the asteroid Itokawa from the Japanese space agency for examination. In addition, it is particularly dedicated to Bavarian meteorites, such as Neuschwanstein, Machtenstein and Stubenberg.

For the field of materials research, the provision of natural mineral samples

and their crystal-chemical investigation is now of great importance. The main focus of the MSM in this field is on phosphates, which are used in technology as cathode material for lithium-ion batteries (e.g. triphylin) or as storage minerals (alunite supergroup). Raman spectroscopy is becoming increasingly important as a non-destructive examination method in mineralogy and materials research. The microraman spectrometer of the MSM is used both for own research, e.g. on meteorites, compounds of the sodalite group, tourmalines or phosphate minerals, and as a service for researchers of the LMU.

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