Laboratory of Natural Materials

Principal goals and activities

- Microscopical and chemical analyses of porous inorganic materials, organic-inorganic composite systems, surface structures, thread support systems, supporting structures, nanostructure systems.
- Assessment of wetting power and surface tension.
- Characterization of surface structures.
- Modelling of structures and shapes based on results received from the analyses of natural items indicated above.
- Preparation of methodologies for the assessment of selected physical and mechanical parameters of natural items.
- Preparation of structure analogies applicable in engineering practice.

Specific instruments and outcomes

The site in its activities uses its own chemical laboratory and instruments and meters of partnering sites engaging in the research activities mentioned below:

- Microscopy analyses
- Chemical analyses
- Characterization of surface properties
- Mechanical and micromechanical testing
- 3D printing

General focus of laboratory

- The site focuses on the study of natural items in terms of their structure and material.
- Analyses are conducted in samples collected from plants and animals in order to obtain all available information on their structures, shapes and chemical composition in relation to the role and function of those items as well as to the resulting influence of the environment in which they are found and to which that may have been adapted.
- Interdisciplinary research connects the fields of biology, chemistry and physics with technical disciplines in order to establish knowledge on the preparation, function and subsequent degradation from the molecular level to functional system level and vice versa.