Thematic Session 02

Property, functionalization and applications of one-dimension nanoporous clay minerals: from nanofiber to nanotube

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The topics of the proposed session will cover the fundamental aspects and actual applications of tubular and fibre-like clay minerals, such as halloysite, palygorskite, sepiolite, and imogolite, among others. Particularly, clay scientists, material scientists, biomedical researchers and engineers are focusing a growing interest toward the abovementioned clay minerals as they allow the incorporation of multifunctionalities and their use as nano-containers, besides other attractive properties for materials applications spanning from medical and environmental uses to energy and cultural heritage conservation. The fundamental knowledge on the mineralogy, structure and properties of these clay minerals is of key importance to target specific applications. This session aims at gathering the most active research groups worldwide and to share the most advanced results regarding synthesis, functionalization, properties and uses. The session also intends to bridge the different competences from scientists with a wide range of specialization within the following specific topics regarding nanotubular and fibrous clay minerals:
- Mineralogy, geology, synthesis, modification and characterization.
- Applications and future prospects in medicine and biology, materials science and (bio)nanocomposites, environmental protection and remediation, energy and other advanced applications.

Keywords: Halloysite, Palygorskite, Sepiolite, Imogolite, Composite, Functionalization, Characterization, Nanohybrid, Medical and biological uses, Advanced materials.