

Dr. Filippo PARISI (University of Palermo, Italy) 01.08.1975 Köln, Germany MSc University of Palermo, Italy PhD University of Trieste, Italy

Physical chemistry of alumino-silicate clay materials for environmental, pharmaceutical and cultural applications

Alumino-silicate clay materials are natural occurring minerals with various applications, of which eco-applications are the most desired and widespread. Among the wide range of the clay nanoparticles, Halloysite nanotubes (HNT) are newly emerging nanomaterials which are able to act as nanofiller as a consequence of their hollow tubular morphology and tuneable surface chemistry. Halloysite is naturally occurring, environmental friendly, cheap and biocompatible as shown by several in vitro and in vivo studies. Halloysite possesses an alumina inner lumen and a silica outer surface allowing its selective functionalization and the encapsulation of chemically and biologically active compounds such as drugs, natural molecules and other functional agents.

In this lecture, a brief presentation of Halloysite nanotubes, their structure and peculiar properties, will be provided. Then, after some examples of simple modifications, a brief overview of recent application studies in fields like Environmental remediation, Drug Delivery and Cultural Heritage, will be presented.