

## **Down to Nanoscale: Observations of archaeological copper based artifacts from the Late Pre-dynastic site of Maadi**

*Stefania PANERO, Department of Chemistry, Sapienza University of Rome*

Bringing nanosciences to the tangible cultural heritage community gives the opportunity to address the research in an interdisciplinary way, with the help of specialists of pure disciplines (physics, chemistry, material sciences) associated with those practicing interface disciplines such as archaeometry, and conservation science. This complexity of approaches to investigate a large number of objects, with a large heterogeneity at different scales, explains why the nanoaspects of cultural heritage systems have only appeared fairly recently. Contrary to a large part of systems that are studied in experimental sciences and that can be synthesized, authorizing reproducibility of measurement, heritage systems present several particularly as their uniqueness, their heterogeneity at different scales or their variability. A multidisciplinary approach applied to the study of the origins and developments of early metallurgy technology in Egypt and Near East is here reported.