

A bridge between past and future: Chemistry for Cultural Heritage

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Abstract

Chemistry and materials science play an outstanding role in understanding, protecting and transmitting the legacy of the multimateric artefacts we inherited from past generations. Chemists as well as materials scientists are called to contribute to solve some of the challenges that face Cultural Heritage today: composition and structure of heritage materials, that allow to obtain information on provenance, dating, manufacturing technology of artefacts, conservation, restoration, safeguard, securing of artefacts against natural catastrophes and man-made disasters. In the last decades, the advances in the analytical capabilities of spectroscopic and chromatographic methods, the developments in chemical imaging and the potential of nanotechnologies and nanomaterials, allowed to improve to a great extent the traditional conservation and restoration methods and contributed to the development of new diagnostic methods. Moreover, the increased availability and popularity of portable non-invasive instrumentation catalyzed innovation in the research of Cultural Heritage and provided new solutions and perspectives in its documentation, interpretation and cultural uses. This multidisciplinary vision associated with ICT helps fostering the role of Cultural Heritage as a key factor for better understanding our history, traditions and culture, an instrument of cohesion of our diversified community, and not least an element of individual and social wellbeing.

The contribution of our research group to the study and characterization of metallic artefacts of historical and archaeological interest will be illustrated.

Bio

Emma ANGELINI, graduated in Chemistry at the University of Torino in 1975, is Full Professor of Applied Physical Chemistry at Politecnico di Torino since December 2003. From 2017 she is Vice-President of the ICC-International Corrosion Council and from 2012 till now she is Fellow of ASP (Alta Scuola Politecnica). She teaches Chemistry in the courses of Electronic Engineering, and in the field of e-learning she recorded a course of Chemistry broadcasted by RAI NETTUNO SAT1 and RAI NETTUNO SAT2, by means of HotBird satellite of EUTELSAT. She performs activities on science divulgation with the Galileo Museum of Florence.

She is responsible for research projects in the following fields:

i) protection of cultural heritage, ii) biomaterials to be employed in restorative dentistry, iii) innovative alloys for employments in electrocatalysis, iv) surface modification of materials by low pressure plasmas. Her scientific work is witnessed in more than 200 papers.

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