

SUPSI

Development of non-invasive spectro-analytical methods for the assessment of cleaning procedures of polychrome surfaces

Open Lecture

Tuesday 12th march 2019, 17:00
Aula Magna
Campus Trevano, Canobbio

Bachelor and Master
of Arts SUPSI in
Conservation-Restoration



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Talk by

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Abstract

The present research as integral part of the European project IPERION CH (Integrated Project for the European Research Infrastructure on Cultural Heritage) has been focused on the development of non-invasive spectro-analytical methods for a real-time monitoring of cleaning procedures on painted surfaces. The analytical methodologies are intended to be useful to researchers developing new methods for conservation, as well as to conservators themselves when dealing with the definition of appropriate cleaning procedures for specific artworks. To this purpose, limits and strengths of different portable advanced instruments, suitable to investigate changes in chemical and physical properties of the materials involved in a cleaning operation, have been explored. Specifically, the potential of mobile nuclear magnetic resonance (NMR-MOUSE) for monitoring the solvent penetration effects on the paint films have been evaluated, while selectivity and sensitivity of reflection FT-IR spectroscopy have been evaluated for the detection of possible cleaning system residues (i.e. non-volatile compounds such as surfactants, chelating agents and thickeners) on treated surfaces. Moreover, this technique has also been applied in combination with optical coherence tomography (OCT) for assessing the removal of overlaid materials (e.g. natural and synthetic varnishes, waxes and overpaints) from painted surfaces by both solvent and laser cleaning. Lastly, in-situ infrared analysis has been exploited for a more accurate chemical characterization of these removed materials extracted from the cotton swabs generally used by conservators/restorers. The results obtained for these topics allowed a promising in-situ monitoring protocol to be defined based on the complementary use of different portable instruments aimed to pilot a more targeted, cautious and respectful cleaning intervention.

Biography

Patrizia Moretti obtained her master degree in Sciences and Technologies for the Conservation and Restoration of the Cultural Heritage at the University of Perugia in 2011. In 2012 she achieved a studentship for two years with CNR-ISTM of Perugia concerning the application of non-invasive methods for the study of alterations on artworks surfaces. She got her Ph.D. in Chemistry at the University of Perugia in 2018 with a research project aimed to the development of non-invasive spectro-analytical methods for the assessment of cleaning procedures of polychrome surfaces. On this specific field, she continued to work for one year as postdoctoral researcher at the CNR-ISTM of Perugia. Currently she is a postdoctoral researcher at the University of Applied Sciences and Arts of Southern Switzerland (SUPSI - DACD), where her present research interests deal with the application of both non-invasive and non-destructive invasive methods for studying artworks materials and for monitoring conservation treatments.

