

## **MOLAB, A MOBILE FACILITY FOR NON-DESTRUCTIVE *IN-SITU* STUDIES OF THE EUROPEAN CULTURAL HERITAGE**

B. G. Brunetti  
INSTM and Centre SMAArt, University of Perugia, Italy  
[bruno@dyn.unipg.it](mailto:bruno@dyn.unipg.it)

MOLAB consists of a network of infrastructures located in Italy (University of Perugia, CNR-ICVBC/INOA, and OPD) providing a coherent access, under a unified management structure, to a set of mobile equipment and related competences, for *in-situ* non-invasive analyses of artwork materials. The service is offered to European scientists and conservators/restorers through Eu-ARTECH (Access, Research and Technology for the European Cultural Heritage), I3 initiative within the 6<sup>th</sup> Framework Program of the EU (for details, see: <http://www.eu-artech.org>).

The MOLAB facility includes compact and versatile equipment for non-destructive *in-situ* measurements by XRF, mid-FTIR, near-FTIR, micro-Raman, Vis-NIR, UV-Vis fluorescence, IR-colour scanner reflectography, fluorescence imaging, laser micro-profilometry, NMR relaxometry, video-microscopy, AFM, and thermography.

After four years of work, MOLAB facilities have been applied by several users for non-invasive *in-situ* studies of prestigious artworks (more than 25 projects in 12 different countries), such as mural, panel and canvas paintings by Perugino, Raphael, Leonardo, Cezanne, Renoir, Mondrian, Rothko, etc.; stone sculptures by Michelangelo, Bernini, etc.; ceramics by Xanto Avelli and Giorgio Andreoli; medieval illuminated manuscripts as the Psalter Manuscript, the Book of Kells, etc., and other kind of artworks.

In spite of the limitation of portable equipment, compared to sophisticated laboratory instrumentations, it has been widely confirmed that the *in-situ* application of spectroscopy and fluorescence techniques (in association to XRF, today a standard for *in-situ* non-destructive studies) permit to achieve excellent characterization of execution techniques, to test new restoration methods, to identify alterations and their distribution, or even to find new cases of scientific interest to be put under the focus of laboratory research.

Behind a general description of the MOLAB facilities and performances, case-studies will be presented on paintings, stone sculptures, and Renaissance majolica.