

Curriculum vitae

Silvia Bruni is Associate Professor of Analytical Chemistry in the Facoltà di Scienze e Tecnologie of the Università degli Studi di Milano.

She holds courses for the degrees in Chemistry, in Science and Technology for the Study and Conservation of Cultural Heritage and in Science for the Conservation and Diagnostics of Cultural Heritage. She also lectured for the PhD School in Chemical Sciences and for the Master courses in Sciences for the cultural heritage and Sciences for Archaeology, always in the Università degli Studi di Milano.

From 2009 to 2014 she was Director of the Centro interdipartimentale di Riflettografia Infrarossa e Diagnostica per i Beni Culturali of the Università degli Studi di Milano.

Her scientific activity was initially devoted to the spectroscopic characterization of inorganic materials, in particular ceramics, glasses and glass-ceramics, and is now dedicated to the chemical analysis of artistic and archaeological materials. Her main research projects involve:

- (1) the identification of ancient textile dyes, by use of HPLC and surface-enhanced Raman spectroscopy;
- (2) the identification of artistic pigments and binders by means of FTIR spectroscopy in the mid and near infrared and micro-Raman spectroscopy, also employing portable instrumentation optimized for such application in her laboratory;
- (3) in the scope of a co-operation with the Cattedra di Etruscologia of the Università degli Studi di Milano, the classification of archaeological pottery from the point of view of provenance and manufacturing technology, by means of atomic emission and absorption spectroscopy, FTIR and diffuse reflection NIR spectroscopy and powder X-ray diffraction;
- (4) the analysis of archaeological organic residues, such as resins, balms and adhesives, using GCMS and FTIR spectroscopy;
- (5) the analysis of several other materials of interest in the field of art and archaeology, such as metallurgical slags, inks, leather and degradation products.

The results of her research activity are presented in more than 100 publications in specialized international peer-review journals and in volumes.

Most recent publications:

- (1) M. Longoni, S. Bruni (2021). Identification of synthetic organic pigments in contemporary artists' paints by FT-IR and FT-Raman: an advanced analytical experiment. *Journal of Chemical Education*, vol. 98, p. 966-972, ISSN: 0021-9584, doi: 10.1021/acs.jchemed.0c00875.
- (2) A. Galli, M. Gargano, L. Bonizzoni, S. Bruni, M. Interlenghi, M. Longoni, A. Passaretti, M. Caccia, C. Salvatore, I. Castiglioni, M. Martini (2021). Imaging and spectroscopic data combined to disclose the painting techniques and materials in the fifteenth century Leonardo atelier in Milan. *Dyes and Pigments*, vol. 187, 109112, ISSN: 0143-7208, doi: 10.1016/j.dyepig.2020.109112.
- (3) M. Gargano, L. Bonizzoni, E. Grifoni, J. Melada, V. Guglielmi, S. Bruni, N. Ludwig (2020). Multi-analytical investigation of panel, pigments and varnish of the Martyrdom of St. Catherine by Gaudenzio Ferrari (16th century). *Journal of Cultural Heritage*, vol. 46, p. 289-297 ISSN: 1296-2074, doi: 10.1016/j.culher.2020.06.014.
- (4) M. Longoni, A. Freschi, N. Cicala, S. Bruni (2020). Non-invasive identification of synthetic organic pigments in contemporary art paints by visible-excited spectrofluorimetry and visible reflectance spectroscopy. *Spectrochimica Acta. Part A, Molecular and Biomolecular Spectroscopy*, vol. 229, p. 1-11, ISSN: 1386-1425, doi: 10.1016/j.saa.2019.117907.
- (5) M. Boscacci, S. Francone, K. Galli, S. Bruni (2020). The brightest colors: A Fourier-transform Raman, surface-enhanced Raman, and thin-layer chromatography-surface-enhanced Raman spectroscopy study of fluorescent artists' paints. *Journal of Raman Spectroscopy*, vol. 51, p. 1108-1117 ISSN: 0377-0486, doi: 10.1002/jrs.5868.