

## 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 and in Science and Technology for the Study and Conservation 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 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 GC-MS 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) S. di Lernia, S. Bruni, I. Cislighi, M. Cremaschi, M. Gallinaro, V. Gugliemi, A. M. Mercuri, G. Poggi, A. Zerboni (2015). Colour in context. Pigments and other coloured residues from the Early-Middle Holocene site of Takarkori (SW Libya). *Archaeological and Anthropological Sciences*, doi: 10.1007/s12520-015-0229-4

(2) E. De Luca, S. Bruni, D. Sali, V. Guglielmi, P. Belloni (2015). In Situ Nondestructive Identification of Natural Dyes in Ancient Textiles by Reflection Fourier Transform Mid-Infrared (FT-MIR) Spectroscopy. *Applied Spectroscopy*, vol. 69, p. 222-229.

(3) S. Bruni, V. Guglielmi (2014). Identification of archaeological triterpenic resins by the nonseparative techniques FTIR and <sup>13</sup>C-NMR: the case of Pistacia resin (mastic) in comparison with frankincense. *Spectrochimica Acta. Part A, Molecular And Biomolecular Spectroscopy*, vol. 121, p. 613-622

(4) J. Dunne, R.P. Evershed, M. Salque, L. Cramp, S. Bruni, K. Ryan, S. Biagetti, S. di Lernia (2012). First dairying in green Saharan Africa in the fifth millennium BC. *Nature*, vol. 486, p. 390-394

(5) F. Pozzi, G. Poldi, S. Bruni, E. De Luca, V. Guglielmi (2012). Multi-technique characterization of dyes in ancient Kaitag textiles from Caucasus. *Archaeological and Anthropological Sciences*, vol. 4, p. 185-197