

## NON-INVASIVE CHEMICAL IMAGING OF THE PAINTING SURFACES: AN OPPORTUNITY FOR NEW INTERDISCIPLINARY RESEARCHES IN ART HISTORY

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The precious character of the Cultural Heritage artifacts and their uniqueness imply particular cautions and require instruments, which may give the maximum of information directly on the objects, in-situ in the museums or in the archaeological sites. The implementation of new analytical tools, including mobile instruments, allows a deep insight on the archaeological and artistic materials. We will show applications of different mobile instruments we built recently in the laboratory to be used in challenging work environments like Egyptian tombs and to allow in situ characterization of artistic materials:

- In the Egyptian, Greek and Roman Antiquity, buildings, tombs and statues were often painted in brightest colors. Only few traces of this splendor remain today on marbles, but their study allows gaining insight in this world of Antique polychromy. XRF and Visible-NIR hyperspectral imaging techniques allow to clearly visualizing traces of pigments different in elemental composition from the marble support or surface contaminations.

- The Impressionists are renowned for their painting technique and their approach to capture the effects of light in nature through a new use of color. We will show on a Gustave Caillebotte painting that high spatial resolution chemical data measured with a new full field X-ray fluorescence imaging instrument reveal a complex use of pigments and the formation of alteration products, and help to understand the artist's choice of materials and their manipulation with small and thin brushstrokes.