

**Assessment of Time Gated-LIF for the characterization of frescoes and painted artworks:
the cases study of the ADAMO project:**

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The improvement of selectivity for the identification of pictorial materials by using fluorescence imaging represents a challenge in the field of non destructive diagnostic applied to Cultural Heritage. With this purpose, the remote fluorescence imaging system (TG-LIF) was applied in several cases studies in the field of ADAMO project (Analysis, Diagnostic and Monitoring Technologies for the Conservation and Restoration of Cultural Heritage) was within the research tasks of this mainly technology transfer project.

Therefore, all the application of the TG-LIF system, related to the project cases' study for the materials identification (binders, pigments and restoration treatments), are presented and discussed in this work.

Moreover the issues related to the application of LIF analysis such as, quenching, self-absorption and other effects, that often affected fluorescence spectra, were solved by using a multivariate statistical approach combined with the use of complementary spectroscopic techniques (Raman, X-Ray Fluorescence (XRF), Fourier Transform Infrared (FT-IR) spectroscopy and UV-VIS-SWIR reflectance).