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ABSTRACTS



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PORTABLE NON INVASIVE ANALYSES FOR CULTURAL HERITAGE

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Cultural Heritage needs to be preserved, conserved, and restored from time to time. Before or during the restoration process usually it is analyzed. It is in fact useful to know its nature and composition, not only for a conscious restoration, but also for identifying fakes or ancient restoration areas or simply to study the story of art.

The requirements that the scientific analyses for Cultural Heritage must have are: nondestructive and noninvasive, multielemental, sensitive, reliable and sufficiently rapid, able to carry out measurements in situ on objects of all types, and to deduce information practically on-line.

Among the techniques that fulfill these requirements we find: multispectral imaging, portable EDXRF, Raman and UV-VIS-NIR spectrometry [1].

But simply applying the techniques one after the other does not make a good job. To enhance the single results it is necessary to relate the results of each technique to the preceding ones and to the subsequent ones in order to produce an organic set of self explanatory data.

In this paper we are going to show some cases in which it will appear clear the necessity of the correct order with which applying the non invasive techniques and what data of each of them it is necessary do understand in situ to obtain the maximum of the subsequent scientific techniques.

In Figure 1 we see the application of multispectral imaging techniques on a painting on canvas to detect repainting and the application of XRF spectrometry to determine the pigments of the retouches.



Figure 1: Application of multispectral imaging and XRF spectroscopy on a painting on canvas

References

1. R.Cesareo, S.Ridolfi. "Portable systems for EDXRF Analysis of Works of Art", in "Portable X-ray Fluorescence Spectrometry", The Royal Society of Chemistry, ISBN 978-0-85404-552-5 (2008).