

Direct Raman spectroscopy in art conservation science

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Abstract

Raman spectroscopy has grown to be one of the most important analytical techniques used in the art analysis field. Instrumental characteristics, such as the excellent spatial and spectral resolution, the selection of the laser needed (in multi-laser analyzers) for enhancing the Raman signal or provoking the molecular vibrations, the ability to project point measurements in a grid for illustrating the spatial distribution of the compounds, are some technical advances of the Raman technique. Moreover, and completely in lined with the art conservation science demands, Raman spectroscopy uses the smallest amount of sample possible for conducting the research in a non-destructive way. And it is one of the few analytical approaches, that when is applied in-situ and directly on the field, provides valuable information.

The importance of the direct Raman analysis for both the evaluation of the conservation state of the work of art and/or the identification of the materials used, is going to be highlighted via multiple examples expanding from prehistory to contemporary art. Furthermore, the latest mobile instrumental approached are going to be discussed and evaluated on the basis of performing advanced non-destructive and non-invasive analysis.

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