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# **ABSTRACTS**

## Automatic recognition of color pigments from Raman spectrum analysis

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In this paper, an algorithm to automatic recognize pigments from Raman spectrum analysis is presented. The Raman spectroscopy is a technique to characterize which pigments figure in paintings. Machine Learning techniques are applied taking into account Raman spectrum database in order to identify their characteristic features. This information is necessary to automatically recognize unknown pigments by using similarity measure of Pattern Recognition.

## Bayesian multichannel blind deconvolution for ancient document analysis and restoration

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In the analysis and restoration of the content of ancient degraded documents, the main issue is often to separately extract and enhance the various layers of information overlapped in the document itself. We model multisensor images of a document as convolutive mixtures of the interfering patterns, and adopt a Bayesian estimation approach that exploits Gibbs priors, accounting also for well-behaved edges in the ideal images. We show applications to the removal of the bleed-through/show-through effects, and to the recovery of the original color of faded images. This latter application can be of interest in other cultural heritage contexts, such as the restoration of old photos and videos.