477. Title:High energy X-ray powder diffraction for the imaging of (hidden) paintings
Authors:De Nolf, Wout (1); Dik, Joris (2); Vandersnickt, Geert (1); Wallert, Arie (3); Janssens, Koen (1)
Source title:Journal of Analytical Atomic Spectrometry
Volume:26
Issue:5
Issue date:May 2011
Publication year:2011
Pages:910-916
Language:English
Document type:Journal article (JA)
Abstract:Over the past few years a number of innovative imaging techniques have been introduced for the visualization of hidden paint layers in Old Master Paintings. These include X-ray fluorescence scanning, TeraHertz imaging, optical coherence tomography and other acoustics-based forms of visualization. All of these techniques are usually a trade-off between their penetrative capability on the one side and their analytical precision in terms of spatial resolution and material identification on the other. Here, we present the first-time use of High-Energy X-ray Powder Diffraction imaging (HE-XRPD) in the study of hidden layers in paintings. As an imaging tool, it combines high-depth sensitivity with fingerprint identification of most inorganic painting materials. The potential as well as some limitations of this technique are demonstrated using model paintings as well as an authentic 16th century painting.