

EINLADUNG

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VORTRAG

von

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University of Antwerp, Belgium

X-rays, Pigments and Paintings: Degradation and Alteration Studies

Freitag, 20. Jänner 2012, 16:00 Uhr

Akademie der bildenden Künste, Schillerplatz 3

Vortragssaal EA1 (Erdgeschoss)

X-rays, Pigments and Paintings: Degradation and Alteration Studies

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X-ray based methods of analysis can be used for conducting various types of studies that yield information on the current state of conservation or the genesis of painted works of art. As a complement to Portable X-ray fluorescence (PXRF), a method that is being used to an increasing extent in many conservation laboratories to document the (inorganic) pigments used in paintings, we have recently developed a macroscopic XRF (MA-XRF) scanner that allows to record element specific images of large scale paintings. This instrument is useful for visualising overpainted layers in oil paintings; a few case studies involving paintings by F. de Goya, V. Van Gogh and Rembrandt will be discussed. On the micro- and nanoscopic scale, the combination of XRF with related methods such as X-ray diffraction and/or X-ray absorption spectroscopy allows to study the chemical transformations specific pigments are subject to and that can cause their colour to change.

As examples, the alteration of Van Gogh's chrome yellow and Rubens' vermilion will be discussed.

Koen Janssens is professor of general and analytical chemistry at the University of Antwerp in Belgium. He obtained his PhD in 1989 on a thesis dealing with the use of artificial intelligence techniques for automated treatment of X-ray analysis data. Since then, he has been actively making use of X-ray microbeams, produced in laboratory sources such as X-ray tubes or generated in large accelerator complexes called synchrotron storage rings, for non-destructive materials analysis.



Next to devoting his attention to the development of methods for X-ray based materials analysis, he also employs synchrotron micro- and nanobeams for studying questions of environmental nature, mainly dealing with heavy metal pollution of natural materials such as soil and sediment. In the area of cultural heritage, he employs X-ray based methods to better understand alteration and degradation processes of different materials such as glass, inks and paintings.

He is author of ca 150 scientific papers and edited several scientific books on (non-destructive) X-ray analysis and related topics.