Plenary Lecture

PL03

Contribution of crystallography to the preservation of art and cultural heritage

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This lecture will begin by providing a definition of Cultural Heritage from the perspective of Conservation Science, taking account of the radical challenge that the advent of new materials in contemporary art has posed to the field of conservation. Over the past 45 years I have applied my experience as a crystallographer to answer questions and find solutions to many problems raised by the material dimension of cultural heritage. This lecture will showcase a series of crystallographic interventions in the field of conservation science, from Maya Blue structure, elucidated using synchrotron and neutron powder diffraction to Tutankhamen tomb paintings, from Michelangelo censure panels in the Sistine chapel to a hidden face under a Rembrandt painting. My talk will address some of the ways crystallography has and can contribute to conservation science in the areas of archaeometry and conservation, such as:

o Enormous advances in instrumentation for the analysis and identification of specific compounds
o Use of neutrons for CT-scan of large statues, compared to powerful X-ray sources and medical equipment.
o Use of hand held XRF, Raman, FTIR. New noninvasive portable XRD/ XRF
o Development of imaging techniques
o Design and creation of non-invasive instruments for crystallographic analysis to answer questions relating to archaeometry and conservation.

I hope to highlight the unique contribution that crystallography can make to the widening field of Conservation Science in the preservation of our ever more challenging cultural heritage.

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