



IAEA

Atoms for Peace: The First Half Century

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Conserving cultural heritage in Croatia

The challenge...

As a Mediterranean country, Croatia has many archaeological sites with a vast number of historical objects that require in depth research, conservation or restoration. Until recently, only a small number of objects were properly characterized before conservation work began. Insufficient characterization sometimes resulted in significant damage to these objects, as the procedures applied did not fully match the requirements for their restoration.

The project...

Obtaining very precise information on the chemical composition of an artefact is invaluable for proper conservation or restoration work. This project applied non-destructive analysis techniques, such as mobile X ray fluorescence (XRF) spectroscopy, to research the origins of the objects and determine how best to conserve or restore them. In specific cases, sensitive microanalysis was required that relied on accelerator based techniques, such as external beam particle induced X ray excitation (PIXE) and proton microprobe PIXE.



Quantifiable data...

- In the first year of XRF operation, more than 1000 samples have been analysed.
- External beam PIXE was used in the first year to characterize more than ten historical artefacts made of different alloys (such as sculptures, coins, helmets and weapons)
- Ion microbeam PIXE is now being used to examine some 100 samples per year of cross-sections of paint layers.

The impact...

The impact of high quality of conservation work on archaeological objects cannot be underestimated: it will be highly beneficial for the presentation of Croatian cultural artefacts to the Croatian population and to visitors from abroad.