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Use of X-Ray Computed Tomography for Heritage Conservation

X-ray computed microtomography (XCT) is one of the most powerful non-destructive visualisation techniques for the full-field examination of an object, as it is able to provide morphological and physical information about the internal structure of the examined sample. In addition, XCT data allows the extraction of a very precise surface model of the specimen, more accurate than the surface model captured by handheld scanners, and the technique is already well established in the field of cultural heritage preservation. The wide variety of sizes and composition that characterise archaeological finds and artefacts requires specific expertise in tomographic systems. Two main objectives have been achieved in recent years: to enable conservators to carry out examinations using this powerful method and to make CT equipment available to museums and conservation centres. In recent years, our research group has been able to carry out high-resolution XCT on both small objects (voxel size of a few micrometres) and large objects (up to 0.5 m in size). We will report on our experiences with XCT diagnostics of cultural artefacts and present a number of case studies.

Acknowledgements

The authors gratefully acknowledge the financial support of the Slovenian Research and Innovation Agency (research core funding No. P2 0273, No. I0-0032 and J7-50226).

**3rd Annual Conference
of the Slovenian Node
of the European Research
Infrastructure
for Heritage Science**

*E-RIHS Slovenia
Koper, 18–19 November 2025*

