

Terahertz meets sculptural and architectural art: Evaluation and conservation of stone objects with T-ray technology.

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Abstract.

Conservation of cultural heritage is an area where novel scientific techniques are having enormous impact. Given the value and uniqueness of art pieces, non-invasive diagnostic methods are highly appreciated by conservators. Terahertz radiation has shown enormous potential as non-contact probe that can be used for the three-dimensional reconstruction of internal structure of stone-made objects. In this article we report the evaluation of the internal damage state of two art pieces, a medallion from the Castle of Celle and a window sill from the St. Peter of Trier Cathedral. We also used terahertz radiation to follow and assess the restoration process of the window sill. We found that terahertz spectroscopy is an excellent non-destructive evaluation method for stone artwork that shows enormous potential as a tool for conservation..