

Subsurface defect characterization in artworks by quantitative PPT and holographic interferometry

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Abstract

In this study, experimental data from two artwork specimens was acquired and processed by pulsed phase thermography (PPT) and holographic interferometry. The first specimen was a wood painting with a variety of damages typical of this kind of pieces. A comparative study between thermography and interferometry results showed the potential complementarities of both techniques. The second inspected specimen was a fresco with fabricated inserts inspected by PPT to detect and characterize the subsurface defects. The well-known concept of Signal-to-Noise Ratio (SNR) is proposed for the selection of the proper phasegram frequency at which defect sizing is performed. A de-noising step was required prior to the application of the Canny edge detection algorithm. It is demonstrated with this investigation that PPT and holographic interferometry are valuable tools for the qualitative and quantitative assessment of artworks.

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