From Medical to Art Diagnostics: OCT - a novel tool for varnish ablation control

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ABSTRACT

Since many medical diagnostic methods are non-invasive and even non-contact, they are well suited for inspection of fragile and unique objects of art. In art conservation it is a need for convenient and non-invasive method for monitoring of removal of the varnish layer from paintings – one of the most crucial operations in their restoration. In this study we present application of the Spectral Optical Coherence Tomography (SOCT) for *in-situ* monitoring of the laser ablation of the varnish layer. The examination of the ablation craters made with Er:YAG laser permits for the optimization of the laser emission parameters like fluency and working regime, with respect to efficiency and safety of the ablation process. Frames from the SOCT movies obtained during real time monitoring of the burning of the ablation crater are shown for the first time.

Keywords: art conservation, Er:YAG laser Q–switched and free running, laser ablation, spectral optical coherence tomography, SOCT, varnish.

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