ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ
ΤΜΗΜΑ ΕΠΙΣΤΗΜΗΣ ΚΑΙ ΤΕΧΝΟΛΟΓΙΑΣ ΥΛΙΚΩΝ

ΠΑΡΟΥΣΙΑΣΗ ΜΕΤΑΠΤΥΧΙΑΚΗΣ ΔΙΠΛΩΜΑΤΙΚΗΣ ΕΡΓΑΣΙΑΣ

Τίτλος

Laser Assisted Thinning of Aged Varnish Coatings on Painted Artworks; Real-Time Monitoring of the Laser Ablation Process and Assessment of the Treated Surfaces

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Επιβλέπων Καθηγητής: Δημήτριος Παπάζογλου

Παρασκευή 17/2/2023

9:00

Η παρουσίαση θα πραγματοποιηθεί στην **αίθουσα Β2 του Τμήματος Χημείας,** του Πανεπιστημίου Κρήτης.

ABSTRACT

Varnish layers, commonly found as protective coatings in numerous heritage objects, undergo degradation mechanisms leading to their deterioration, and thus their removal becomes imperative in the context of conservation practices. UV laser ablation constitutes an exceptionally promising cleaning approach, however it may be significantly reinforced with real-time monitoring of the ablation process. In this study, photoacoustic (PA) monitoring was employed in order to investigate its potential in monitoring the laser ablation process of aged varnish coatings from technical mock-ups, in the framework of real-time comparison of the PA signals produced upon material removal by UV light. Hence, a simple statistical approach which utilizes information in the context of temporal delay and amplitude reduction that the PA signals convey during the laser ablation process is proposed. Processing of the acoustic signals determines the critical laser pulse responsible for complete varnish removal upon laser irradiation, which is further justified using various analytical and diagnostic techniques.