

RELIGIOUS POLYCHROME WOOD OBJECTS INVESTIGATED/RESTORED USING PHOTONIC TECHNIQUES

Monica Simileanu, Walter Maracineanu, Joakim Striber
National Institute of Research and Development for Optoelectronics INOE 2000, Romania

The Romanian territory was in the past the center of a civilization based on wood. Wood was largely used as raw material for buildings and decorations, for creating art objects and it expressed very well the old Romanian civilization. The religious polychrome wood objects present a typical aspect in Romanian history. They were made by peasants or by dedicated artisans. Usually, the resulted objects tended to be used in the same purposes, but the technical aspects were quite different from one region to another or from one artisan to another. Their artistic expression is a testimony of originality and craftsmanship and is one of the main topics that define old people's culture. It is very important to define a complete morphological profile of these unique designed objects, to emphasize local aspects and to have certain criteria for conservation purposes.

The paper will present a complex investigation procedure and laser cleaning tests applied on religious polychrome wood objects. Laser Induced Breakdown Spectroscopy Laser Induced Fluorescence, UV-VIS-NIR reflectance spectra and CIELab color characterization will be used to obtain a chemical profile of the surfaces. Multispectral Imaging, Thermovision and LIF scanning will be used to create false color images of the objects for a visual characterization. All these techniques along with optical microscopy will serve at laser cleaning monitoring, applied for the polychrome wood surfaces. The results will be compared to see materials' chemical composition difference influence on laser cleaning parameters. The data regarding conservation status of the art objects will be connected with environment microclimate monitoring to ensure a complete vision about preservation of the cultural objects. Comparing objects will be made on their origin, material composition and microclimate condition.