

**FROM EXPERIMENTAL STUDIES TO APPLICATIONS IN CONSERVATION FIELD:
LASER TESTS ON A POLYCHROME WOODEN WORK OF ART
(POLITTICO DELLA GALLERIA SABAUDA)**

*P. Buscaglia**, *P. Croveri *•*, *A. Giovagnoli *§*, *M. Nervo**, *A. Piccirillo •* *F. Zenucchini**

* *Centro Conservazione e Restauro "La Venaria Reale"*

• *Università degli Studi di Torino, Dipartimento di Chimica IFM*

§ *ISCR Istituto Superiore per la Conservazione e il Restauro*

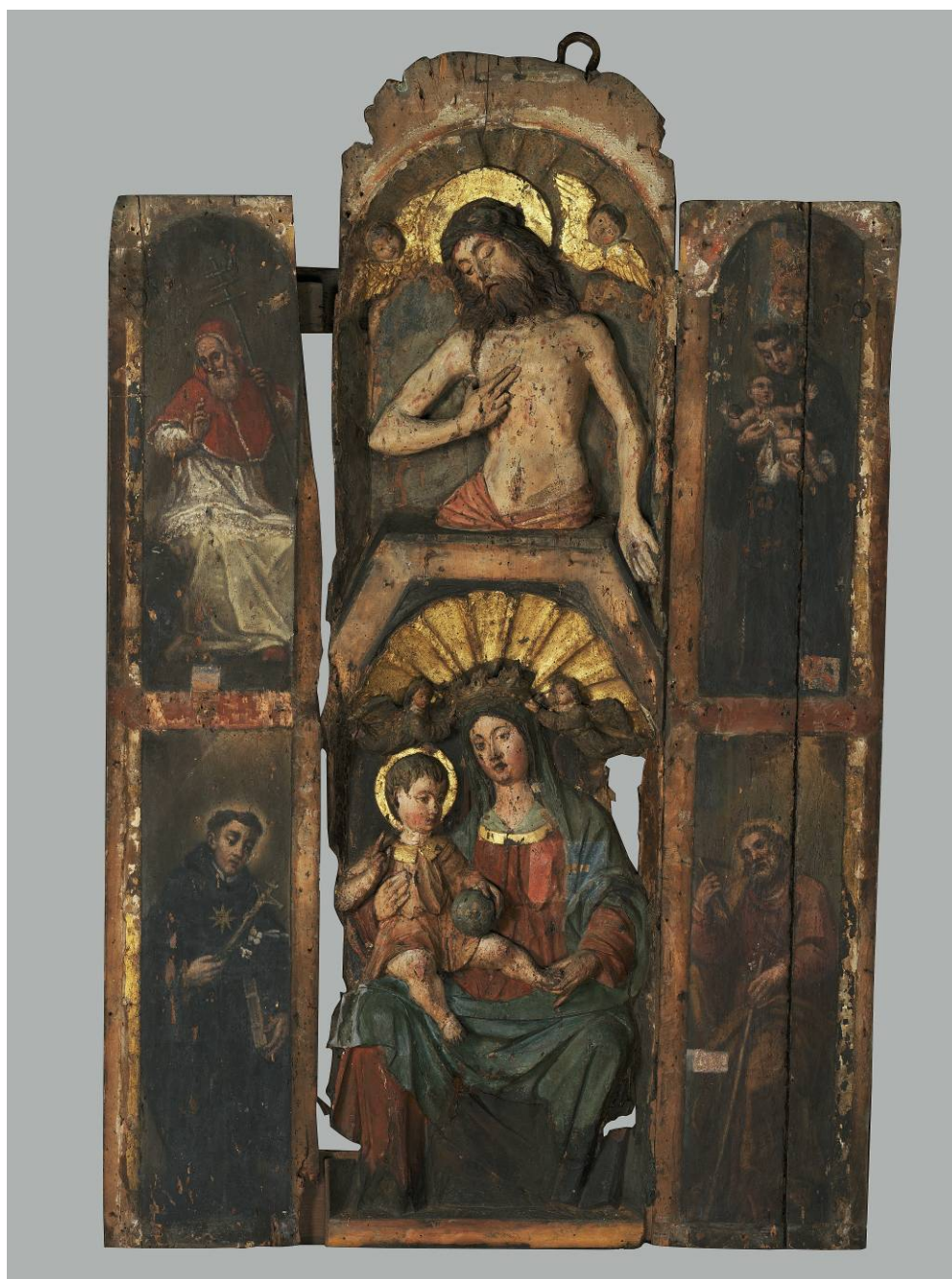
This "Polittico" is a wooden triptych representing 'Christ and Madonna with Child', constituted by three panels, property of Galleria Sabauda, Torino. The central carved panel is a precious regional artefact originally attributed to XVI c. but probably older, while the two lateral parts depicted with Saints images and realized with a poor execution technique, are probably subsequent.

Stratigraphic studies (by OM, SEM-EDX, FT-IR) show a complex stratification of different materials: gilded and pictorial layers were put on underlying surfaces during centuries, resulting in a great modification of original aspect of the work of art and bringing to a misleading chronological collocation.

The conservation condition of original gold leaf and preparatory layers was compromised, gold laminae were lacunous and showed weak adhesion to base ground layer. Also the wooden structure, affected by diffuse xylophages attacks, seemed to be quite enfeebled by biodeterioration.

Removal tests of more recent pictorial layers with traditional methods (either mechanical or chemical - aqueous and not aqueous) were not satisfying and in some case too aggressive in confront to the weakened substrate, so laser tests were performed on the artwork. Starting from results obtained by a previous research activity focused on laser cleaning effects on different substrates (wooden and gilded surfaces, painting on canvas, metals, textiles, acrylic emulsions), carried out last year at the newly born Conservation and Restoration Centre "La Venaria Reale", it was decided to use a laser VARIO Nd:YAG 1064 nm LQS. Experimental conditions were calibrated in relationship with chemical composition and conservation condition of layers to be removed and those we want to preserve (gold leaf and its shellac finishing), operating at the beginning at 1 Hz in order to better control the laser action and with the assistance of ethylic alcohol superficial wetting and using out of focus mode when fine gradual action was needed. Scientific control of the laser effect was carried out with non-invasive techniques (video-microscope observation of unveiling surfaces and XRF analysis) and by some limited microsampling (stratigraphy, OM, SEM-EDX, FT-IR characterization).

To date, first results carried out of Madonna and Christ figures pointed out the suitable parameters to use this kind of laser as effective tool in selective removal of overlaying materials, restoring a correct esthetical interpretation of carving and pictorial details.



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