

THE OPTICAL PROPERTIES OF LUSTRES AND THEIR SPATIOTEMPORAL EVOLUTION

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Lustres are one of the most famous decorative objects of the Mediterranean basin during Middle-Age and Renaissance times. They were appreciated for their magnificent optical and colorimetric properties, their colour changing with respect to the orientation in which they were observed. At that time, these effects were considered as magic.

Since a few years, a lot of research has been conducted in order to understand the structure and composition of these ceramics. It appeared that at the surface of the lustres, there are nano-particles of silver and/or copper embedded in the glaze. Thanks to these studies, the optical properties of these ceramics could finally be understood and modelled. The first part of the talk deals with the links between the structure and the optical effects (plasmon absorption, interferences...) and present a model used to simulate the optical properties from which it is possible to obtain 3D images of the lustres.

The second part of the talk concern the application of the model to understand the optical measurements performed on samples of lustres from different places and different era. A comparison between all these simulation and measurements enhances the differences between the various productions in space and time. From this, a discussion will follow about how the study of the optical effects can lead to a better understanding of the techniques used in the production and the aims followed by the craftsmen.