

Gilt membrane threads in 11th-15th century Hispano-Islamic and Italian textiles



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Golden threads have been woven into textiles and used for embroidering clothes for more than two thousand years. The age and provenance of the textiles are partly coded in these decorative metal threads; however, historical sources do not disclose in detail the manufacturing techniques. Starting in the 11th century, membrane metal threads became very popular for enriching textiles. These threads were made by gilding/silvering organic materials (leather, parchment, animal membranes or paper), cutting them into narrow strips and using these strips either flat or wound around a fiber core. The resulting gilt membrane threads had a layered and heterogeneous structure, of which their metal layer has been the target of most investigations. To determine the composition of all organic and metal layers in a group of gilt membrane threads, we are combining for the first time proteomics analysis with visual microscopy, 3D-imaging, scanning electron microscopy/energy dispersive X-ray spectroscopy (SEM/EDS), and micro X-ray fluorescence spectrometry (μ XRF). A series of 30 medieval Hispano-Islamic and Italian textiles from the Cooper Hewitt, Smithsonian Design Museum, the Museo Civico di Arte, Modena (Italy) and the Centre de Documentació i Museu Textil of Terrassa (Spain) were investigated to characterize metal threads made with animal membranes or skins. The combined information from these methods will contribute to identifying the different manufacturing technologies, to predicting the age and provenance of metal threads, and to solving the controversial attribution of these ancient textiles as Hispano-Islamic or Italian.

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