

**Development of Latvia Cultural Heritage research.
Recent trends and impact achieved.**

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Application for a poster

Latvian Cultural Heritage is definitely not so recognizable and still remains mostly undiscovered for the rest of the world. Only some of our most well known painters, like Mark Rothko or Vija Celmins, who exhibited in the MoMa (LA, USA) and many other places, as well as our archaeological collection is more or less known to World's public. But, despite this, we have a remarkable number of unique objects and monuments that characterize our nation, culture and history. The conservation and preservation of Latvian Cultural Heritage starts 90 years ago, when National History Museum of Latvia started conservation and research of historical objects. However, serious research on the cultural heritage materials started only in the eighties of the 20th century, when National History Museum of Latvia founded the Department of Research and Imitation. Until the department received more advanced equipment, investigation process of the historical objects was based on the analytical chemistry and historical prejudices and views on the composition of materials.

With the development of technologies and new opportunities, it was possible to supply the laboratory with Raman spectrometer InVia (Renishaw) and portable μ -XRF spectrometer ARTAX (Bruker Nano GmbH), as well as Leica microscopes, which allowed us to study historical objects much more detailed.

As a result of this we were able to change some of the prejudices of cultural heritage professionals about the materials used in cultural heritage objects. For example, the long-held belief that all grey archaeological metal objects are made of tin has proved to be misleading. XRF spectrometry provided us more detailed information about the compositions of archaeological items and lead to interesting, new and unexpected discoveries about the composition of the objects. At the same time the Raman spectroscopy, equipped with a confocal microscope, has made it possible to identify traces of colour layers in objects that were not considered polychrome at all. Detailed and deeper view into historical objects opened a new level of possibilities to see that Latvia cultural heritage has been much richer, colourful and more interesting than we have thought for a long time.



Figure 1. The door of Luste manor. 18th century. Rundāle Palace Museum collection
(conservators allow the presence of polychromy).

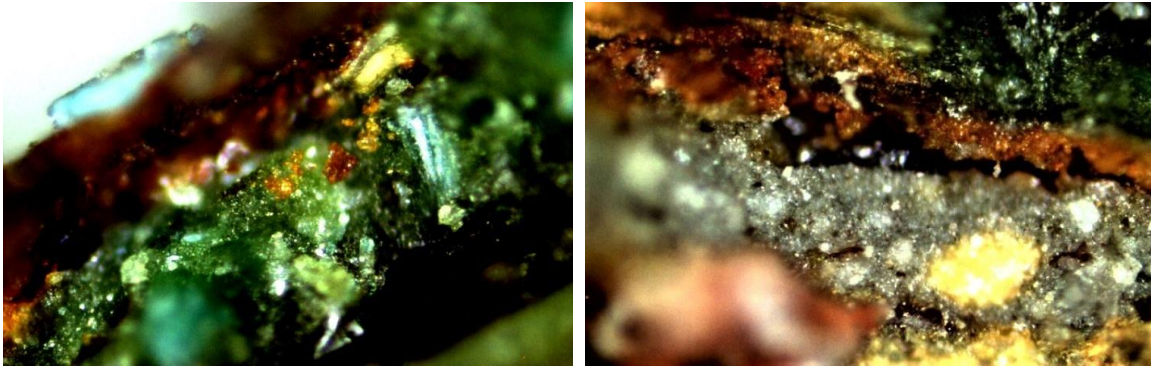


Figure 2. Green paint layer of Luste manor door (overpainting *Copper based green, oil*). Magn. 200x.

Figure 3. Grey layer of Luste manor door (original painting with overpaintings *Lead white, organic black, oil*). Magn. 200x.

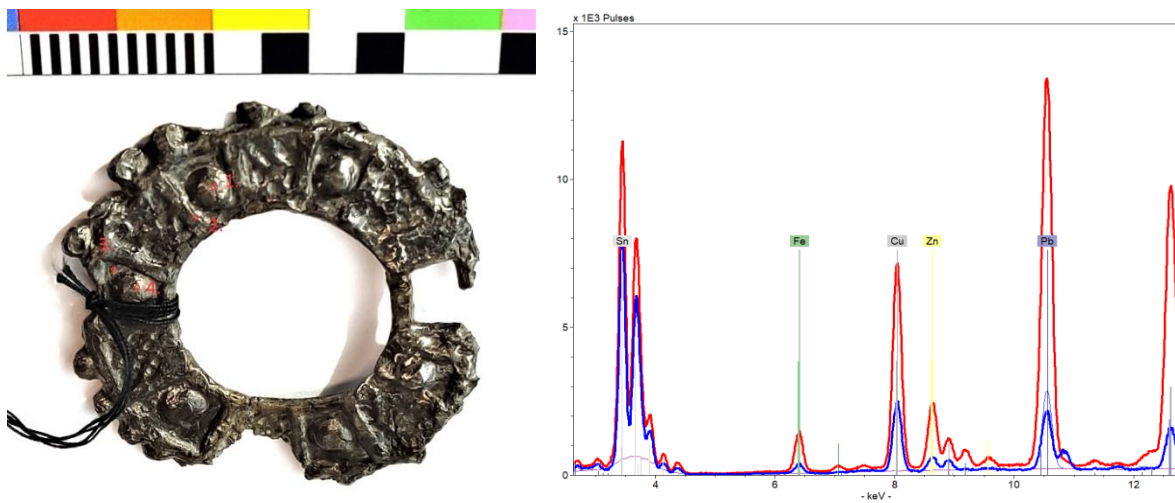


Figure 4. Archaeological tin fibula. National History Museum of Latvia collection.

Figure 5. μ XRF spectrums of tin fibula materials.

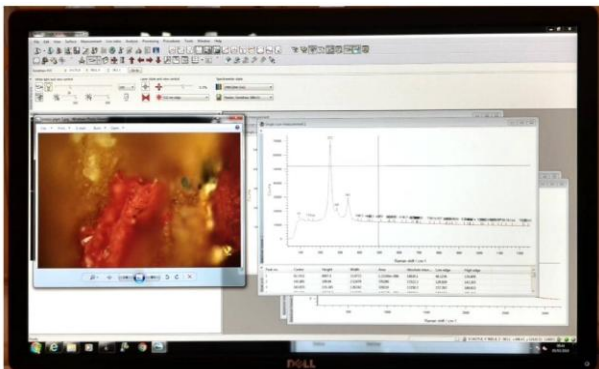


Figure 6. Raman spectrum of red pigment recognized as *Cinnabar* (785nm, InVia, Renishaw)



Figure 7. Polychrome wood sculpture. Jesus on the Cross. National History Museum of Latvia collection.