

Investigation of stone artefacts and bronze objects by portable devices

Boglárka Maróti, Veronika Szilágyi, Ildikó Harsányi, Zsolt Kasztovszky, László Szentmiklósi
Nuclear Analysis and Radiography Department
Centre for Energy Research
maroti.boglarka@energia.mta.hu

The main activity of our laboratory is the non-destructive composition determination of various objects with neutrons. Our handheld XRF spectrometer is primarily used for pre-screening samples arriving for PGAA measurement, which allows us to estimate the risk of activating objects, especially in case of metal alloys, which is essential when examining objects from a collection of a museum. Samples that are difficult to measure with PGAA can be analyzed, field-measurements can be carried out and the measurement of non-transportable objects is also possible. In recent years, our handheld XRF has been successfully used in combination with other methods in the provenance analysis of chipped stone tools and to determine the composition of Bronze Age metal objects. Structured-light 3D optical LED scanner provides 0.5-1% accuracy in the imaging of the object surface, making it easier to design custom sample holders for fixing the valuable samples to the facilities' sample manipulator, as well as the size and shape comparison of the different artefacts. We present the experiences of the past few years in our presentation.