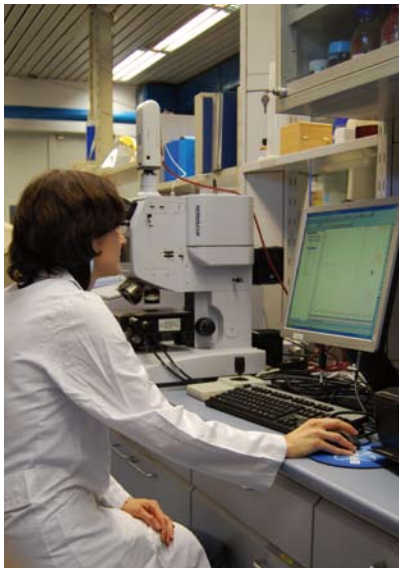
MASS SPECTROMETER

Total Cost: € 140.000,00



The study of the origins of a work of art itself and its makeup is a very important area of research, particularly when applied in conjunction with the historical knowledge of the work itself. This research is fundamental to understand and study the relations among different populations and how different cultures relate to each other in diverse geographical areas.

This research would be driven forward by the purchase of a mass spectrometer. At present, the Laboratory does not have an instrument which can identify these characteristics. The only instrument capable of performing these studies is the mass spectrometer with plasma atomization ICP - MS. Perkin Elmer, a leading American company in building tools for analytical science, has among its products the new mass spectrometer Nexion 300X ICP-MS. It is a necessary tool for our laboratories. The high analytical sensitivity will enable the labs to study chemical elements in trace amounts even on very small samples and to study almost all the chemical elements of the Periodic Table.

Similar studies can be performed for the understanding of the marble quarries used to implement important works of our collections. It is possible to detach the chemical elements present in traces on the materials in order to define the geographical area that the object belongs to. These trace elements act as a sort of "fingerprint" for the material. For example, the presence or absence of chemical elements of the group of platinoids (osmium, iridium, ruthenium and rhodium) will be used to define the origin of the gold used in the creation of the beautiful artifacts in the museums.

Similar studies are also possible for other chemical elements such as copper and tin. Eventually, comparing the different results within works of art of a single collection would allow us to conclude if they were from the same workshops and to determine whether a fragment is relevant or not to an object or if any features of an object are not original.

Study of the chemical elements in traces will allow our restoration team to study the origin of certain mineral pigments such as those used in the production of Egyptian sarcophagi.

These, of course, are just some examples of scientific studies and research which could be carried out by our lab if we acquire an analytical instrumentation with sufficient sensitivity to determine trace elements, even on small samples. At present, the Laboratory does not have an instrument with these characteristics. The only instrument capable of being able to perform these studies would be a mass spectrometer with plasma atomization ICP - MS.

The new mass spectrometer Nexion 300X ICP-MS is a necessary tool for our laboratory to fulfill its potential.