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Non-destructive Elemental Analysis on Paintings and Metal Artifacts[1]

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In most cases sampling on art objects is prohibited for several reasons: The uniqueness of the objects, their - intellectual - value, and their fragility. In the cases where sampling is authorized, it is only possible on hidden places, not, e.g. in the facial region of a portrait. Therefore, non-destructive methods have to be applied in order to obtain information about the composition and structure of the objects. One non-destructive method of choice is the proton induced X-ray Emission (PIXE). High energy protons with an energy of around 60 MeV have a large range in the investigated material and, therefore, can provide information from deep inside the object. Measurements on ancient paintings, providing complementary information to the Neutron Autoradiography, as well as the analysis of Bronze Age and Medieval metal objects, will be presented.

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