

Status of the MACHINA project, the Movable Accelerator for Cultural Heritage In-situ Non-destructive Analysis

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Over the years, there has been an ever growing interest for in-situ compositional analyses in the field of Cultural Heritage (CH). A good example of this trend is provided by the noticeable increase of studies employing mobile XRF scanners. However, XRF systems have some limitations that do not affect Ion Beam Analysis (IBA) techniques. Unfortunately, at present, IBA analysis are possible only in laboratory, as no transportable accelerator has been developed so far.

To allow for IBA in-situ measurements, the Italian National Institute for Nuclear Physics (INFN) and the European Organization for Nuclear Research (CERN), both with a long and significant experience in the development, use and application of particle accelerators, have jointly started the MACHINA project for the development of a transportable accelerator system. The pillars of such a project are the competencies developed both at INFN-Labec, for out-of-vacuum IBA studies in CH, and at CERN, concerning high-frequency radiofrequency quadrupole cavity (HF-RFQ).

The current status of the MACHINA project after four years from the beginning will be here shortly presented, together with expected future activities.

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