

Friday 16 June 2023, at 15:00

Speakers are:

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Accelerators for cultural heritage studies: from big facilities to transportable instrumentation

The term “cultural heritage” (CH) has been slowly changing to “social heritage” over the years. When we talk about cultural heritage studies we are not only talking about artworks such as paintings and sculptures but everything that concerns the study of our history, such as objects of anthropological interest. The diversity behind the characteristics of the materials to be studied (bones, organic pigments, metals) is so vast that different analytical techniques are applied in order to answer all the questions performed by historians, restorers, archaeologists, geologists, and all the other professionals involved in the CH field. In this framework, taking into account the historical value of the CH samples, accelerators based techniques are fundamental because they allow high performance, non-invasive and non-destructive analysis, or even when necessary, just a small amount of material is needed. Moreover, the accelerator based techniques offer a complete set of diagnostic analysis which cover the majority of the case studies found in CH. For this reason, a brief summary of the facilities and their techniques used for social heritage studies will be presented, starting from the big ones which perform neutron or muon radiography, passing through light sources and small accelerators. In addition, in the last years the demand for transportable instrumentation in the CH field has grown, which opened a new field of technological research: transportable accelerators. For this reason, the INFN (Florence division) in collaboration with CERN built MACHINA (Movable Accelerator for Cultural Heritage In-situ Non-destructive Analysis), the first transportable accelerator specifically for CH studies to be installed inside the Opificio delle Pietre Dure of Florence, a renowned restoration center.

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