

# IAEA Workshop on Innovative Approaches of Accelerator Science and Technology for Sustainable Heritage Management

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## IAEA activities to facilitate access to accelerators

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Ion beam accelerators and synchrotrons serve as hubs for networking and R&D at national and international level. Being medium to large-scale facilities with significant human and research infrastructure, accelerators serve to conduct fundamental and applied research, as well as to render services contributing to the achievement of several Sustainable Development Goals (SDGs).

The IAEA has supported the development and applications of accelerators for a very broad range of scientific applications, including the characterization and preservation of objects of the tangible cultural heritage. The support is implemented via the Technical Cooperation Programme (TC) and by implementing different activities within the Division of Nuclear Applications in Physics and Chemistry.

While several TC projects in the past have supported the installation of ion beam accelerators as well as to expand their infrastructure by adding new end stations allowing to diversify their use by the international community, especially by researchers from Developing Countries is still limited. One feasible mechanism would be to foster the access to both ion beam accelerators and synchrotrons via the implementation within the TC Projects of Scientific Visits focused onto conducting experiments that could expand the analytical tools used in the project.

This contribution presents the activities implemented in the Physics Section to foster the application of accelerator-based studies and to facilitate the access to accelerator facilities, including:

- Introductory e-learning courses available at the IAEA Open Learning Management System
- Fostering information exchange through the Accelerator Knowledge Portal, the Nuclear Science and Instrumentation Portal and the NSI Newsletter.
- Organizing Technical Meetings and Training Workshops
- Providing Technical Assistance Missions to improve the work of accelerator facilities upon request from the IAEA Member States.
- Conducting Coordinated Research Projects to facilitate the access in the past to Elettra Sincrotrone (G42005) and currently to a network of particle accelerators (G42008).

As part of the CRP G42005 (“Experiments with Synchrotron Radiation for Modern Environmental and Industrial Applications”, 2014-2018) participants from seventeen countries obtained research results of high-quality tackling with challenging interdisciplinary applications, including cultural heritage and preventive conservation.

The ongoing CRP G42008 (“Facilitating Experiments with Ion Beam Accelerators”) relies in the access to 11 ion beam accelerator centres distributed in different areas of the world, and 14 research teams scheduled or already performed their experiments, including one on Archaeology.

Some examples of results obtained within these projects are provided for illustration.

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