IAEA
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Joint IAEA–Natural History Museum Vienna Advanced Workshop on Museum-driven Research and Preservation Strategies of Heritage Objects using Nuclear Analytical Techniques

Hosted by the

Government of Austria

through the

Natural History Museum Vienna

Vienna, Austria

in Cooperation with
Human Evolution and Archaeological Science (HEAS) in Vienna
https://www.heas.at/

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Information Sheet

ACCELERATORS
FOR HERITAGE

Introduction

The study and preservation of cultural heritage objects increasingly rely on close collaboration between museums, conservation professionals, archaeologists, physicists, chemists, and material scientists. Museums are not only custodians of cultural heritage but also important drivers of scientific research, providing access to unique collections and defining research questions that emerge directly from conservation and curatorial practice. This workshop aims to bring together experts from diverse disciplines engaged in the investigation, documentation, and preservation of heritage objects to foster an artefact-centred discussion on the application and future development of nuclear analytical techniques.

Over recent decades, nuclear analytical methods have become indispensable tools in heritage science. Their ability to provide detailed information on the composition, structure, manufacturing technologies, provenance, and state of preservation of artefacts has significantly expanded our understanding of past societies and material culture. At the same time, the often unique and irreplaceable nature of museum collections demands analytical approaches that minimize sampling and avoid damage wherever possible. Consequently, there is an increasing emphasis on developing and refining minimally invasive and non-invasive methodologies that satisfy both scientific objectives and ethical responsibilities towards cultural heritage preservation.

The Natural History Museum Vienna (NHMV), evolved from the Royal Habsburg Collections and is one of the most important natural history museums in the world. It is also one of the largest museums and non-university research Institutions in Austria and center of excellence on natural sciences. There are more than 100,000 objects on display in 39 exhibition rooms and the NHMV is home for 30 million objects available to more than 60 scientists and numerous guest researchers who carry out basic research in a wide range of topics related to human sciences, earth sciences, and life sciences. The NHMV is also home to Libraries, state-of the-art laboratories with facilities such as MicroCT, SEM, DNA testing as well as a department for Science Communication and one for Exhibition design that enable a wide range of activities. Collecting, preserving, researching, presenting and communicating have always been central activities of the museum.

Partner institutions are the Human Evolution and Archaeological Science (HEAS) in Vienna which is a research network funded through the University of Vienna and the Austrian Academy of Sciences and supported by the Natural History Museum, Vienna. It has the mission to study human biological and cultural evolution together in an interdisciplinary network comprising evolutionary anthropology, archaeology, genetics, palaeontology, life history, behavioural biology, isotope physics, geophysics, remote sensing, geology, environmental systems science, geochemistry, and material sciences.

Within the framework of this advanced workshop, application of nuclear analytical techniques will be discussed including among others, X-ray fluorescence (XRF) techniques, ion beam analysis, radiocarbon dating, micro-computed tomography (microCT) imaging, synchrotron-based methods, neutron imaging and neutron radiography. Complementary analytical approaches that contribute to a more comprehensive characterisation of heritage materials are equally welcomed. The integration of multiple techniques often provides insights that cannot be achieved by a single method alone, allowing researchers to address complex questions concerning authenticity, chronology, material composition, production technologies, degradation processes, and conservation treatments.

By bringing together specialists from various scientific and professional backgrounds, this event intends to strengthen the dialogue, the interdisciplinary networks and promote collaborative approaches that place heritage objects at the centre of scientific investigations. Discussions will therefore address how methodological innovations can respond to the specific needs of museums and heritage institutions and support sustainable stewardship of cultural collections.

A central component of this workshop will be the presentation and discussion of case studies involving archaeological and museum objects as well as the corresponding need for nuclear analytical techniques for conservation/preservation measures. These contributions are expected to highlight not only scientific results but also the research strategies, interdisciplinary workflows, and practical considerations underlying successful collaborations between museums and analytical laboratories. By focusing on object-based investigations, the meeting seeks to encourage the exchange of experiences regarding methodological challenges, limitations, and best practices in heritage research. Particular attention will be given to the translation of analytical findings into decision-making processes for conservation and collection management.

Objectives

This workshop aims to foster interdisciplinary exchange on innovative nuclear analytical methodological developments and approaches to respond to the specific needs of museums and heritage institutions towards supporting sustainable stewardship and preservation of cultural collections.

Target Audience

The event is intended for museum professionals, conservators, archaeologists, heritage scientists, and researchers from the physical and material sciences involved in the analysis and preservation of cultural heritage. The workshop is addressed both to young and experienced specialists working in relevant fields. A special emphasis will be given to support young researchers to present their research topics, doctoral thesis etc. that include application of nuclear technology on archaeological artifacts in a poster session.

Working Language

The official language of the workshop is English (no interpretation will be provided).

Expected Outputs

- Review existing research workflows and integrate complementary analytical techniques through the discussion of case studies and methodological advances;
- Propose and assess best practices in the analytical investigations of heritage objects (with focus on archaeological artefacts);
- Advancement and refinement of minimally invasive and non-invasive analytical approaches for cultural heritage studies;
- Development of recommendations for the responsible application of nuclear analytical techniques in museum contexts;

- Promotion of new interdisciplinary collaborations and the initiation of future research activities;
- Strengthening the role of museums as active partners in heritage science.

Topics

The workshop aims at tackling the following key topics:

- Current applications of nuclear analytical techniques in the study of archaeological and museum collections;
- Integration of complementary analytical approaches for restoration/conservation of cultural heritage materials (focus in archaeological artefacts, but enlarged to other interesting case studies as well);
- Methodological challenges and limitations associated with the investigation of unique and sensitive heritage objects;
- Emerging trends and future perspectives in nuclear methods for cultural heritage preservation and interpretation.

Meeting structure

The event will be structured around lectures by experts devoted to the topics mentioned above, working group discussions, a poster session and visiting of relevant research-laboratories of the Natural History Museum Vienna, HEAS consortium, University of Applied Arts, Restoration/Conservation Institute and IAEA Seibersdorf Laboratories.

Participation and Registration

All persons wishing to participate in the event have to be designated by an IAEA Member State or should be members of organizations that have been invited to attend.

In order to be designated by an IAEA Member State or invited organization, participants are requested to submit their application via the InTouch+ platform (https://intouchplus.iaea.org) to the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or organization for onward transmission to the IAEA by **30 September 2026**, following the registration procedure in InTouch+:

1. Access the InTouch+ platform (https://intouchplus.iaea.org):

- Persons with an existing IAEA NUCLEUS account (https://nucleus.iaea.org/Pages/help/Registration.aspx) can sign in to the platform with their username and password;

2. Once signed in, prospective participants can use the InTouch+ platform to:

- Complete or update their personal details under 'Complete Profile' and upload the relevant supporting documents;

- Search for the relevant event under the 'My Eligible Events' tab;

- Select the Member State or invited organization they want to represent from the drop-down menu entitled 'Designating Authority' (if an invited organization is not listed, please contact InTouchPlus.Contact-Point@iaea.org);
- If applicable, indicate whether financial support is requested and complete the relevant information (this is not applicable to participants from invited organizations);
- Based on the data input, the InTouch+ platform will automatically generate the Participation Form (Form A) and/or the Grant Application Form (Form C);
- Submit their application.

Once submitted through the InTouch+ platform, the application, together with the auto-generated form(s), will be transmitted automatically to the required authority for approval. If approved, the application, together with the applicable form(s), will automatically be sent to the IAEA through the online platform.

NOTE: The application for financial support should be made, together with the submission of the application, by **30 September 2026**.

For additional information on how to apply for an event, please refer to the InTouch+ Help page. Any other issues or queries related to InTouch+ can be sent to InTouchPlus.Contact-Point@iaea.org.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and financial matters.

Participants are hereby informed that the personal data they submit will be processed in line with the Agency's Personal Data and Privacy Policy and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required. The IAEA may also use the contact details of Applicants to inform them of the IAEA's scientific and technical publications, or the latest employment opportunities and current open vacancies at the IAEA. These secondary purposes are consistent with the IAEA's mandate. Further information can be found in the Data Processing Notice concerning IAEA InTouch+ platform.

Abstracts and Presentations

The IAEA encourages participants to submit abstracts and give oral or poster presentations on the work of their respective institutions that falls under the topics listed above.

However, it is not compulsory to submit an abstract for cost-free participants. Those who are seeking for IAEA financial support shall submit (a) an abstract relevant to the workshop and (b) Curriculum Vitae including 3-5 most recent scientific publications relevant to the scope of the workshop.

Abstracts and any additional supporting documents shall be submitted via the InTouch+ platform as part of the application.

The abstract will be reviewed as part of the selection process. Authors will be notified by email **in due course** of the acceptance of their proposed presentations.

Expenditures and Grants

No registration fee is charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the event. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants (especially presenters of oral presentations and participants of a panel discussion). Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the event.

The application for financial support should be made using the **Grant Application Form (Form C)** which has to be signed and submitted by the competent national authority to the IAEA together with the **Participation Form (Form A), Abstract, and Abstract Submission Form (Form B) and CV via the InTouch+ platform by 30 September 2026.**

Early-career scientists are encouraged to apply. A special poster session will be organized to provide them with the opportunity to present their research topics, doctoral thesis etc. that include application of nuclear analytical techniques on archaeological artefacts.

Visas

Participants who require a visa to enter Austria should submit the necessary application as soon as possible to the nearest diplomatic or consular representative of Austria.

Venue

The event is an in-person meeting only.

The workshop will be held at the **Natural History Museum Vienna**.

Address: Burgring 7, 1010 Vienna

access through Subway U3 and U2 and tram lines 1, 2, 71 and D (station "Volkstheater")

The Natural History Museum Vienna is awarded by the Austrian Ecolabel.

To demonstrate their commitment to sustainability, the IAEA and the Natural History Museum Vienna will organize this workshop as *green meeting* according to the guidelines of the Austrian Ecolabel.

Please visit the event webpages for further info:

https://nucleus.iaea.org/sites/accelerators/Pages/Accelerators4Heritage.aspx

https://www.heas.at/events/heas-workshop-at-the-nhm-wien/

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Further cooperations

Cooperation with HEAS (Human Evolution and Archaeological Science) in Vienna:
https://www.heas.at/

and the University of Applied Arts, Institute for Restoration/Conservation:
https://www.dieangewandte.at/ikr_institut

Subsequent correspondence on scientific matters should be sent to the Scientific Secretary/Host organization contacts and correspondence on other matters related to the event to the Administrative Secretary.