IAEA

*Átomos para la paz y el desarrollo*

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International Atomic Energy Agency
Agence internationale de l'énergie atomique
Международное агентство по атомной энергии
Organismo Internacional de Energía Atómica

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In reply please refer to: EVT2104301
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La Secretaría del Organismo Internacional de Energía Atómica (OIEA) saluda a los Estados Miembros del OIEA y tiene el honor de señalar a su atención la celebración del **Taller Conjunto OIEA-ANSTO sobre Técnicas Nucleares e Isotópicas para el Patrimonio Cultural** (denominado en adelante el "evento"), que tendrá lugar de forma virtual a través de Microsoft Teams, **del 6 al 9 de diciembre de 2021**.

La finalidad del evento es proporcionar un foro para que físicos, científicos de materiales, químicos, arqueólogos, conservadores y comisarios de arte intercambien ideas e información sobre la aplicación de técnicas nucleares e isotópicas para el patrimonio cultural, las ciencias de la conservación y la arqueología.

En la reseña informativa adjunta se ofrecen más detalles sobre el evento.

El evento se celebrará en inglés.

Se invita a los Estados Miembros a designar a una o más personas para que participen en este evento en representación de su Gobierno y se los alienta encarecidamente a que seleccionen con ese fin a mujeres cualificadas.

Las designaciones deben presentarse al OIEA por conducto de la autoridad nacional competente (el Ministerio de Relaciones Exteriores, la Misión Permanente ante el OIEA o la Autoridad Nacional de Energía Atómica), a más tardar el **1 de noviembre de 2021**, por medio del formulario de participación adjunto (Formulario A). Los formularios de participación debidamente cumplimentados y autorizados deben enviarse por correo electrónico a la dirección Official.Mail@iaea.org o por fax al número: +43 1 26007 (no se precisan copias impresas). Asimismo, han de enviarse copias por correo electrónico a la Secretaria Científica del evento, Sra. Aliz Simon, División de Ciencias Físicas y Químicas, Departamento de Ciencias y Aplicaciones Nucleares (correo electrónico: N.Skukan@iaea.org), y a la Secretaria Administrativa, Sra. Ragdaa Attia (correo electrónico: R.Attia@iaea.org). Una vez recibidas las designaciones oficiales, la Secretaria Científica del evento contactará directamente a los participantes en relación con otras cuestiones de organización, según proceda.

En caso de que los Gobiernos desearan, además, nombrar uno o más observadores para que prestasen asistencia y asesoramiento a los participantes designados, se les ruega que comuniquen al OIEA el nombre y las señas de esos observadores a más tardar en la fecha antes indicada.

El OIEA no se hace responsable de virus informáticos, gusanos, troyanos, puertas traseras, temporizadores, relojes, contadores o cualquier otra rutina, instrucción o diseño que limiten el funcionamiento, u otro código no solicitado malicioso, ilícito o similar, incluidos programas de vigilancia o rutinas que puedan permitir a cualquier persona el acceso, que estén diseñados con ese fin, o que accedan por iniciativa propia, con el objetivo de borrar, o dañar o modificar de cualquier otro modo datos o sistemas, servidores, instalaciones u otra infraestructura del usuario final (colectivamente, "código inhabilitante"). Asimismo, el proveedor de los servicios para la reunión virtual ha asegurado y garantizado que los Servicios no contendrán, ni ningún usuario final recibirá del programa informático empleado para celebrar la reunión virtual, ninguno de estos códigos inhabilitantes.

La Secretaría del Organismo Internacional de Energía Atómica aprovecha esta oportunidad para reiterar a los Estados Miembros del OIEA el testimonio de su distinguida consideración.

1 de octubre de 2021

Documentación adjunta (en inglés únicamente):

Reseña informativa

Formulario de participación (Formulario A)

Formulario de presentación de memorias (Formulario B)

# Joint IAEA–ANSTO Workshop on Nuclear and Isotopic Techniques for Cultural Heritage

**Virtual Event**

hosted by the
**Australian Nuclear Science and Technology Organisation (ANSTO), Lucas Heights, NSW, Australia**

**6–9 December 2021**

**Ref. No.: EVT2104301**

# Information Sheet

## Introduction

In February 2021 ANSTO became an International Atomic Energy Agency (IAEA) Collaborating Centre to support IAEA activities using nuclear techniques for development and sustainable environment protection (see IAEA and ANSTO websites for more details). Building on two previous Collaborating Centres, the current Agreement is focused on a broad work plan that includes tackling provenance and the authentication of products of illicit trade; the use of isotopes to study water and climate change; the use of nuclear techniques to understand the impact of environmental and atmospheric pollutants and the use of nuclear and isotopic techniques to investigate art, archaeology and cultural heritage materials. As part of this new collaborating centre, we have planned to organize a series of activities to introduce the latest research works and results as well as innovative technological developments.

We are proud to announce the first meeting: the **Joint IAEA–ANSTO Workshop on Nuclear and Isotopic Techniques for Cultural Heritage** which will be organized together with the IAEA and hosted as an on-line meeting by ANSTO from 6 to 9 December 2021.

# Background

Over the last decades, neutron, photon, and ion beams have been established as an innovative and attractive investigative approach for the study and conservation of cultural heritage. ANSTO offers a wide range of unique nuclear-beam techniques to look at the structure and dynamics of materials from the atomic to the macroscopic scale providing complementary information. These powerful and versatile tools are superb probes to be used in tandem with traditional methods to extract maximum information from an object requiring either minimal or no sampling or invasive procedures.

Collaboration between institutions, countries, and experts across a variety of disciplines are critical ingredients to reading the deep past. The big breakthroughs which change our thinking and knowledge are expected to come at the intersection of the major disciplines. Increasingly apparent to scientists, science policy makers and governmental agencies is that an understanding of mankind's past and its impact on the environment is central to tackling the problems of global warming, biodiversity, landscape management and sustainability.

# Objectives

The overall objective of this Workshop is to provide a forum for physicists, material scientists, chemists, archaeologists, conservators, curators, and heritage science stakeholders in order to exchange ideas and information on the application of nuclear and isotopic techniques for cultural heritage, conservation science and archaeology.

The main objective of the event is to contribute to the enhancement of scientific-technological knowledge, innovation infrastructure and human resources training in the area of cultural heritage using nuclear and isotopic techniques. The event also aims to provide a platform to further enhance the nexus between Arts and Science by promoting linkages between the collaborating centre activities and regional collaborators through a synergistic use of various nuclear techniques for the characterisation and preservation of our heritage.

# Expected Outputs

Through scientific presentations and brainstorming discussions, this Workshop is aimed to deliver the following expected outputs:

- To introduce the latest scientific analytical tools which are offered across ANSTO facilities - including neutron, synchrotron, and accelerator-based techniques – to Australian and international partners and scholars from museums, research centres and universities.

- To promote the use of nuclear and isotopic techniques in the research fields of Cultural Heritage, Conservation Science and Archaeology. This will be tailored to novice potential users of ANSTO research facilities.

- To train and update Higher Degree Research (HDR) students on nuclear and isotopic techniques. Students attending will have access to current research and researchers and will have the opportunity to discuss their research.
- To provide a platform to further explore the nexus between Arts and Science.
- To initiate and foster international collaborations and develop strategies for multi-national research projects.
- To identify joint interests in major projects underway in the institutions of the participants, the major stakeholders in the research outcomes.
- To identify the key research organisations, museums, curators, funding agencies and other actors of importance to the field to explore linkages and pursue regional collaborations along the regional priorities with a special attention to the Asia-Pacific region.
- To discuss gaps and needs; and propose activities for the IAEA-ANSTO Collaborating Centre, that will facilitate further development and use of nuclear and isotopic techniques in the field of Cultural Heritage, Conservation Science and Archaeology research.

# Target Audience

The event is intended for young and experienced scientists, archaeologists, conservators, curators and heritage science stakeholders actively involved in the field of characterisation, provenance and authentication of cultural heritage objects and materials with nuclear and complementary analytical techniques.

# Working Language

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

# Structure

The meeting will be held as a virtual meeting via Microsoft Teams.

The meeting will have invited and contributed oral papers presented in sessions devoted to special topics, with subsequent discussions. It is expected that talks by ANSTO experts, as keynotes, will be 40 minutes long, including a 10 minute discussion, while contributed talks will be 20 minutes long, including a 5 minute discussion. A poster session will be also organized.

It is expected that the meeting will start at 9 a.m. on 6 December 2021 and finish by 4 p.m. on 9 December 2021 (Sydney time zone, UTC +11). A summary session will be held on 9 December 2021 to review the activities and conclusions drawn at the meeting that will be documented in a final report. Directions for future research will be also discussed and presented.

# Topics

The event will comprise on-line sessions. The on-line sessions will consist in presentations by ANSTO experts in sessions devoted to specific topics, and presentations by the participants on their research. The on-line sessions will consist of technical presentations on basic theory followed by demonstrations using nuclear techniques available at ANSTO through selected case studies. The presentations will be tailored for novice to intermediate users from the research fields of Cultural Heritage, Conservation Science and Archaeology.

The topics will include:

- Neutron and synchrotron X-ray imaging for structural tri-dimensional characterization;
- Full-pattern Neutron Diffraction technique for structure and phase determination, Neutron Diffraction Residual Stress and Texture Analysis for the characterization of the preferred orientation and lattice deformations of the crystalline structure to clarify the manufacturing processes;
- Neutron activation analysis for provenance study;
- Ion Beam Analysis (IBA) for elemental analysis;
- Accelerator Mass Spectrometry (AMS) as an ultra-sensitive method for isotopic dating;
- THz/Far-IR spectroscopy for the characterization of pigments and other cultural heritage materials;
- X-ray Fluorescence microscopy maps for elemental distribution and for a range of spectroscopic applications such as determining oxidation state and speciation;
- Scanning electron microscope (SEM), focused ion beam (FIB), and transmission electron microscopy (TEM);
- Overview of the most utilised portable equipment for the investigation of cultural heritage;
- Introduction to the IAEA e-learning platform and courses on Heritage Science;
- Mechanism to access research infrastructure and how to write a successful proposal.

Internationally recognised researchers who work professionally with nuclear and isotopic techniques will provide overviews on how to integrate results of the analytical techniques into wider scope of Cultural Heritage research.

AICCM Conservation Science special interest group satellite session – The AICCM (https://aiccm.org.au/) is the professional organisation for conservators in Australia. Their members are conservators in museums and galleries across the country. The purpose of this session is to engage with members of this community who have an interest in ANSTO facilities but are not available for the full meeting. The presentation will cover the techniques and capabilities of ANSTO, how to access ANSTO or further advice and introduce the IAEA CRC to assist with future networking.

As part of the workshop, the participants will be involved in a roundtable discussion to provide recommendations that will help to explore key topics that are relevant to Member States, especially developing countries, that are considering establishing or developing their collaboration in the field of Cultural Heritage, Conservation Science and Archaeology.

A final session of the meeting will be dedicated to summarizing and reviewing activities and recommendations.

# International Programme Advisory Committee (IPAC)

The IPAC will advise the meeting co-chairs on establishing links with institutions and stakeholders dealing with Cultural Heritage, Conservation Science and Archaeology.

| Name | Affiliation |
|---|---|
| Mr Loïc Bertrand | Université Paris-Saclay, ENS Paris-Saclay, France |
| Ms Elisabeth Carter | The University of Sydney, Sydney, NSW, Australia |
| Mr Douglas Galante | The Brazilian Synchrotron Light Laboratory (LNLS), The Brazilian Center for Research in Energy and Materials (CNPEM), Campinas (SP), Brazil |
| Mr Francesco Grazzi | Istituto di Fisica Nello Carrara, Centro Nazionale delle Ricerche, Sesto fiorentino, Italy |
| Ms Irka Hajdas | Laboratory of Ion Beam Physics, ETH, Zürich, Switzerland |

# 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, participants are requested to send the **Participation Form (Form A)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) for onward transmission to the IAEA by

**1 November 2021**. Participants who are members of an organization invited to attend are requested to send the Participation Form (Form A) through their organization to the IAEA by above deadline.

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

About 40-50 people from IAEA Member States and international organizations are expected to attend. Participants should be persons actively involved in the topics of the meeting like physicists, material scientists, chemists, archaeologists, conservators, and curators. HDR students from cultural Heritage, Conservation Science, and Archaeology, and associated fields are particularly encouraged to participate. Museum, art gallery, and cultural-heritage experts are also welcome.

# Papers and Presentations

The IAEA encourages participants to give presentations on the work of their respective institutions that falls under the topics listed above.

Participants who wish to give presentations are requested to submit an abstract of their work. The abstract will be reviewed as part of the selection process for presentations. The abstract should be in A4 page format, should extend to no more than 2 pages (including figures, photographs and tables) and should not exceed 1000 words. It should be sent electronically to Ms Aliz Simon, Scientific Secretary of the event (see contact details below), not later than **1 November 2021**. Authors will be notified of the acceptance of their proposed presentations by **15 November 2021**.

In addition, participants have to submit the abstract together with the **Participation Form (Form A)** and the attached **Form for Submission of a Paper (Form B)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or their organization for onward transmission to the IAEA not later than **1 November 2021.**

# Additional Information

## (1) IAEA PARTICIPATION

A participant will be accepted only, if the Participation **Form A** is transmitted to the IAEA **through the appropriate Governmental representative authority** (e.g. Ministry of Foreign Affairs, National Atomic Energy Authority) by **1 November 2021**.
Those who would like to present their results either as an oral or poster contribution are requested to submit an abstract and **Form B** together with **Form A through the appropriate Governmental representative authority**.

Please kindly indicate at the end of the abstract your preference for oral or poster presentation.

## (2) ABSTRACT SUBMISSION

A one-page abstract is to be submitted by **1 November 2021**. The abstract may be text only or include figures. The abstract must include the authors' names, affiliation and email addresses. Acceptable file formats are Microsoft Word (preferred) or PDF. The filename should be in the following format: "lastname.firstname.filetype".

Authors must make sure that the files do not include copyrighted fonts or any other impediments for reproduction. The abstracts will be reviewed and selected by the International Programme Advisory Committee. Authors will be informed of the acceptance of their contributions via email by **15 November 2021.**

**Beside the official governmental channel, please kindly submit the abstract electronically also directly to the meeting co-chairs before the deadline:**
Aliz.Simon@iaea.org, culturalheritage@ansto.gov.au
Subject: *Nuclear and isotopic techniques for cultural heritage*

**A maximum of 2 contributions will be selected from each Member States.**
Participants will be selected based on their contribution and expertise to best fit to the workshop objectives and its programme.

# Additional Requirements

| | |
|---|---|
| Participant wishes to present an oral or poster presentation | Form A, Form B and abstract with oral or poster presentation preference |
| Participant with no presentation | Form A |

**A questionnaire is part of the selection process and will be sent to participants upon receipt of the endorsed forms.**

# Publication

A Book of Abstracts will be compiled for free distribution during the meeting to every participant. A meeting report will be prepared during the meeting and distributed to each meeting participant.

# EXPENDITURES AND FINANCIAL SUPPORT

The costs for the organization of the meeting are borne by ANSTO and the IAEA.
No registration fee will be charged to participants attending the meeting.

# IMPORTANT DEADLINES

| | |
|---|---|
| **1 November 2021** | Nominations to be sent to the IAEA and submission of abstracts according to the instructions above for selection. |
| **15 November 2021** | Letter of invitations are sent to the accepted participants by the IAEA. Participants are informed on the acceptance of the abstract. |
| **30 November 2021** | Information on the meeting agenda, platform and remote connections are sent to the meeting participants. |
| **6 December 2021** | Meeting begins. |

# WORKSHOP CO-CHAIRS

**Ms Aliz Simon**
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# IAEA Contacts

### Scientific Secretary:

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Email: Aliz.Simon@iaea.org

### Administrative Secretary:

**Ms Ragdaa Attia**
Division of Physical and Chemical Sciences
Department of Nuclear Sciences and Applications
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA

Tel.: +43 1 2600 28227
Email: R.Attia@iaea.org

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

# Event Web Pages

Please visit the following web pages regularly for new information regarding this event:

www.iaea.org/events/EVT2104301

https://www.ansto.gov.au/whats-on

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

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**Form A**
**EVT2104301**

# Participation Form

## Joint IAEA–ANSTO Workshop on Nuclear and Isotopic Techniques for Cultural Heritage

### Virtual Event

### 6–9 December 2021

To be completed by the participant and sent to the competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA, or National Atomic Energy Authority) of his/her country for subsequent transmission to the International Atomic Energy Agency (IAEA) either by email to: Official.Mail@iaea.org or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretary Aliz.Simon@iaea.org and to the Administrative Secretary R.Attia@iaea.org.

Participants who are members of an invited organization can submit this form to their organization for subsequent transmission to the IAEA.

**Deadline for receipt by IAEA through official channels: 1 November 2021**

| | | |
|---|---|---|
| Family name(s): (same as in passport) | First name(s): (same as in passport) | Mr/Ms |
| Institution: | | |
| Full address: | | |
| Tel. (Fax): | | |
| Email: | | |
| Nationality: | Representing following Member State/non-Member State/entity or invited organization: | |

If/as applicable:

Do you intend to submit a paper? Yes ☐ No ☐

Would you prefer to present your paper as a poster? Yes ☐ No ☐

Title:

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. Further information can be found in the Data Processing Notice concerning IAEA InTouch+ platform.

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# Form for Submission of a Paper

## Joint IAEA–ANSTO Workshop on Nuclear and Isotopic Techniques for Cultural Heritage

### Virtual Event

### 6–9 December 2021

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Participants who are members of an invited organization can submit this form to their organization for subsequent transmission to the IAEA.

**Deadline for receipt by IAEA through official channels: 1 November 2021**

| | | |
|---|---|---|
| Title of the paper: | | |
| If applicable: Abstract ID in IAEA-INDICO: | | |
| Family name(s) and first name(s) of all author(s) (same as in passport(s): | Scientific establishment(s) in which the work has been carried out | City/Country |
| 1. | | |
| 2. | | |
| 3. | | |
| Family name(s) and first name(s) of author presenting the paper (same as in passport): | Mr/Ms: | |
| Mailing address: | | |
| Tel. (Fax): | | |
| Email: | | |

I hereby agree to assign to the International Atomic Energy Agency (IAEA):

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☐ that the material submitted to the IAEA does not contain any libellous or other unlawful statements and does not contain any materials that violate any personal or proprietary rights of any person or entity.

**Date:** **Signature of main author:**