



**IAEA**

International Atomic Energy Agency

*Atoms for Peace and Development*

# **Technical Meeting on Role of Neutron Analytical Techniques in Socioeconomic Development**

**IAEA Headquarters, Vienna, Austria**

**22 – 25 April 2025**

**Ref. No.: EVT2404499**

## **Information Sheet**

### **Introduction**

The unique properties of neutrons are well aligned with many scientific and societal challenges. The neutron analytical techniques, such as instrumental and radiochemical neutron activation analysis (NAA), prompt gamma ray activation analysis (PGAA) and neutron depth profiling (NDP) are powerful tools to study the elemental contents/distributions in a specified amount of material or object. Instrumental NAA is a chemically non-destructive technique of multielement analysis used to determine mass fractions of over sixty elements in a variety of materials. For the elements that can be measured, the neutron activation rates affect the sensitivity in Bq/g and the detectability. Additionally, the use of radiochemical separation on the irradiated material allows higher sensitivity for the element(s) of interest. PGAA is a complementary technique that extends quite significantly the sensitivity of the technique across the periodic table of the elements (particularly light isotopes). NDP is a material analysis technique with high economic and societal impact in the development of next generation lithium-ion batteries, analysis of the radiation damage in alloys due to helium implantation, study of boron distribution in semiconductors, and many others.

NAA is widely applied due to its compliance with the requirements of a primary method of measurement, quality assurance and possibility to be implemented at any neutron source with sufficient neutron flux, including isotopic neutron sources, neutron generators, accelerator-based neutron sources, subcritical assemblies and research reactors. PGAA measurements are traditionally carried out at research reactors utilising thermal or cold neutron beams. In recent years, new generation of low energy driven neutron sources collectively known as Compact Accelerator-Based Neutron Sources (CANS) emerged, based on the significant progress in lower-energy accelerator as well as neutron production target technologies. PGAA has also been demonstrated and developed at CANS including industrial applications and in-situ inspections.

The International Atomic Energy Agency (IAEA) is supporting Member States in the development and implementation of neutron analytical techniques by providing technical guidance<sup>1</sup>, managing data bases<sup>2</sup>, offering learning opportunities<sup>3</sup>, software provision<sup>4</sup>, hands-on-training, proficiency tests<sup>5</sup>, and expert advice<sup>6</sup>.

Neutron analytical techniques find applications in almost all areas of life and provide a wide array of services. Evidence of the role of neutron analytical techniques in socioeconomic development support outreach programs and promote public awareness of the importance of the nuclear technologies to the economic growth and innovations. Estimation of the socio-economic impact is a complex task encompassing multitude of different stakeholders on national and global level and requiring mixed monetary and non-monetary approaches. Such assessments highlight the social value of the neutron-based techniques and support informed decision-making on the appropriate scale on infrastructure investments.

## Objectives

The purpose of the event is to bring together practitioners, users and other stakeholders interested in applications of neutron analytical techniques and their role in the socioeconomic development to share information on existing experience, good practices, R&D programs with potential for innovations, niche areas of application, success stories of novel applications, key area of socio-economic benefit, methods for analysis of socio-economic impact.

## Target Audience

The meeting is intended for individuals from research reactor- and accelerator-based neutron source operating organizations which are involved in the development and utilization of neutron analytical techniques, and therefore involved in analysis of socio-economic impact of nuclear technologies.

Member States are invited to designate one or more participants for this meeting. Member States are strongly encouraged to identify suitable women participants.

## Working Language(s)

The working language of the meeting will be English. All communication and papers must be sent to the IAEA in English. No simultaneous interpretation will be provided.

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<sup>1</sup> INTERNATIONAL ATOMIC ENERGY AGENCY, Neutron Activation Analysis Using Short Half-life Radionuclides, IAEA-TECDOC-2055, IAEA, Vienna (2024).

<sup>2</sup> [Interactive Map of Neutron Beam Instruments.](#)

<sup>3</sup> [Course: Neutron Activation Analysis | OPEN-LMS.](#)

<sup>4</sup> INTERNATIONAL ATOMIC ENERGY AGENCY, Intercomparison of k0-NAA Software Packages, IAEA-TECDOC-2026, IAEA, Vienna (2023).

<sup>5</sup> INTERNATIONAL ATOMIC ENERGY AGENCY, Laboratory Intercomparison Exercises Performed in 2010-2022 for Neutron Activation Analysis, IAEA-TECDOC-2054, IAEA, Vienna (2024).

<sup>6</sup> [Integrated Research Reactor Utilization Review \(IRRUR\) | IAEA.](#)

## Topics

Participants are expected to report on their existing experience in designing and utilizing neutron analytical techniques, novel developments, strategies for identifying stakeholders/users' needs, outreach and communications with stakeholders/users, as well as assessment of socio-economic impact. The meeting will also include presentations by the IAEA staff.

The meeting will also include group discussions on specific topics regarding the development of guidance for estimating socio-economic benefit.

## 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 **20 February 2025**, following the registration procedure in InTouch+:

1. Access the InTouch+ platform (<https://intouchplus.iaea.org>):
  - Persons with an existing NUCLEUS account can sign in to the platform with their username and password;
  - Persons without an existing NUCLEUS account can register [here](#).
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](mailto: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 **20 February 2025**.

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](mailto: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.

## 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 1 page (including figures and tables) and should not exceed 500 words. It should be sent electronically to Ms Valentina Semkova, the Scientific Secretary of the event (see contact details below), not later than **20 February 2025**. Authors will be notified of the acceptance of their proposed presentations by **5 March 2025**.

In addition to the registration already submitted through the InTouch+ platform, participants have to submit the abstract, together with the Form for Submission of a Paper (Form B), to the competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or organization for onward transmission to the IAEA not later than **20 February 2025**.

## 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, in particular those intending to make presentations. 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, together with the submission of the application, by **20 February 2025**.

## Venue

The event will be held at the Vienna International Centre (VIC), where the IAEA's Headquarters are located. Participants must make their own travel and accommodation arrangements.

General information on the VIC and other practical details, such as a list of hotels offering a reduced rate for IAEA participants, are listed on the following IAEA web page: [www.iaea.org/events](http://www.iaea.org/events).

Participants are advised to arrive at Checkpoint 1/Gate 1 of the VIC one hour before the start of the event on the first day in order to allow for timely registration. Participants will need to present an official photo identification document in order to be admitted to the VIC premises.

## Visas

Participants who require a visa to enter Austria should submit the necessary application to the nearest diplomatic or consular representative of Austria at least four weeks before they travel to Austria. Since Austria is a Schengen State, persons requiring a visa will have to apply for a Schengen visa. In States where Austria has no diplomatic mission, visas can be obtained from the consular authority of a Schengen Partner State representing Austria in the country in question.

## Important Deadlines

- |                          |   |
|--------------------------|---|
| <b>20 February 2025:</b> | Deadline for submitting Form A (Participation)  |
| <b>20 February 2025:</b> | Deadline for submitting <b>contributing abstract</b> together with Form B (Submission of a Paper) and Form A (Participation)                                |
| <b>20 February 2025:</b> | Deadline for submitting Form C (Grant Application), together with <b>contributing abstract</b> , Form B (Submission of a Paper), and Form A (Participation) |
| <b>5 March 2025:</b>     | Notification to the authors of the acceptance of their proposed presentations   |
| <b>5 March 2025:</b>     | Notification to the participants of their acceptance for participation, including grant attributions  |
| <b>22 April 2025:</b>    | Start of the meeting  |

## **IAEA Contacts**

### **Scientific Secretary:**

#### **Ms Valentina Semkova**

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Department of Nuclear Sciences and Applications  
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Email: [V.Semkova@iaea.org](mailto:V.Semkova@iaea.org)

### **Administrative Secretary:**

#### **Ms Ivana Andrejic-Dukic**

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

Enclosure: Form for Submission of a Paper (Form B)



# Form for Submission of a Paper

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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](mailto: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 ([v.semkova@iaea.org](mailto:v.semkova@iaea.org)) and to the Administrative Secretary ([I.Andrejic-Dukic@iaea.org](mailto:I.Andrejic-Dukic@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: 20 February 2024**

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

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**Date:**

**Signature of main author:**