IAEA
International Atomic Energy Agency
Atoms for Peace and Development

Technical Meeting on New Trends in the Application and Use of Research Reactor Based and Accelerator Based Neutron Sources

Hosted by the
Government of France

through the
French Alternative Energies and Atomic Energy Commission

CEA Saclay, Gif-sur-Yvette, France

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Information Sheet

Introduction

Neutrons have found applications across a wide range of scientific and technological fields. The multidisciplinary research supported by neutron facilities encompasses neutron beam research and applications, materials characterization and testing, and elemental analysis. In addition, these facilities contribute to the production of radioisotopes for medical, environmental, and industrial applications, as well as to advancements in nuclear energy. They also play an important role in capacity building for nuclear science and technology programmes, among many other areas[1].

Traditionally, moderate to high neutron fluxes have been provided by research reactors. To date,

[1] INTERNATIONAL ATOMIC ENERGY AGENCY, Applications of Research Reactors, Nuclear Energy Series No. NP-T-5.3, IAEA, Vienna (2014).

approximately 228 research reactors in 55 countries remain in operation[2]. In addition, facilities based on spallation where high-energy proton beams (up to 3 GeV) are directed onto heavy targets deliver very intense neutron beams. In recent years, significant advancements in lower-energy accelerator technologies as well as in neutron production targets have led to substantial improvements in the capabilities and applications of Compact Accelerator-Based Neutron Sources (CANS)[3]. State-of-the-art developments in this field have resulted in versatile, flexible, and upgradeable neutron sources. High-intensity CANS can therefore complement existing research reactors and represent an attractive alternative for Member States that may not wish to pursue the construction of a research reactor or a spallation neutron source, both of which are significantly more complex and resource-intensive undertakings.

The continued development of neutron source capacities and their expanding fields of application enhance the accessibility, affordability, and availability of these powerful and often unique techniques. This, in turn, supports the growth of knowledge-based economies and delivers substantial economic and societal benefits, given that their impact extends across a wide range of sectors and activities.

The IAEA Physics Section supports Member States in the development and promotion of nuclear applications for peaceful purposes, together with related capacity-building activities. A sustainable neutron research landscape requires a diverse range of neutron sources, as high-, medium-, and low-flux facilities each provide essential and complementary capabilities for a broad user community. In this context, the new project initiative Neutrons for Nuclear Sciences and Applications (Neutrons4NA), supported through a Practical Arrangement with the French Alternative Energies and Atomic Energy Commission (CEA), aims to provide comprehensive assistance to Member States in establishing and developing effective and sustainable frameworks for research and technological applications using neutron source facilities, including both research reactors and accelerator-based neutron sources. The initiative places particular emphasis on promoting the exchange of information on existing experience, good practices, and lessons learned.[4]One also needs to mention separately the recent establishment of the Neutron Science Facility (NSF)[5] at the IAEA Laboratories in Seibersdorf. This facility is based on DD and DT compact neutron generators and aims mainly for capacity building, demonstration of some research and applications using low intensity neutron sources. The IAEA also has future plans to build an electrostatic accelerator, mainly for ion beam analytical research but also including a neutron production station.

Objectives

The purpose of the event is to provide a platform for Member States to share recent developments, experiences and best practices related to novel and emerging uses of research reactor- and accelerator-based neutron sources. The meeting will also explore innovative applications that go beyond traditional areas, such as radioisotope production and neutron activation analysis, and will include advanced materials research, the provision of support to clean energy systems and other modern industries. The event will

[2] IAEA Research Reactor Database: https://nucleus.iaea.org/RRDB.

[3] INTERNATIONAL ATOMIC ENERGY AGENCY, Compact Accelerator Based Neutron Sources, IAEA-TECDOC-1981, IAEA, Vienna (2021).

[4] INTERNATIONAL ATOMIC ENERGY AGENCY, Report of the Consultancy Meeting on the Development of a New Initiative on Using Neutrons for Nuclear Sciences and Applications (Neutrons4NA), IAEA, Vienna (2023); https://inis.iaea.org/records/6v09d-9qn60

[5] IAEA Neutron Science Facility (NSF), https://nucleus.iaea.org/sites/nuclear-instrumentation/Pages/neutrons.aspx

contribute to information sharing with respect to existing experiences, good practices and lessons learned as well as new projects and initiatives to establish and operate neutron sources at the national, regional and international levels.

Target Audience

The meeting is intended for decision makers, managers, researchers and users of both operating or planned accelerator- and research reactor-based neutron sources, including technology developers and providers representing both public and private sectors.

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.

Topics

Participants are expected to report on their existing experience in planning, designing, establishing and utilizing neutron sources, both research reactor- and accelerator based. The meeting will also include presentations by IAEA staff, invited experts and relevant technology providers.

The meeting will also include group discussions on specific topics regarding the enhancement of an IAEA initiative project on Neutrons4NA, foster international collaboration; and develop strategies for multi-national research projects; drafting meeting report and recommendations.

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 **1 July 2026**, 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);
   - If applicable, indicate whether a paper is being submitted and complete the relevant information;
   - 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 **1 July 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.

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 one pages (including figures and tables) and should not exceed 500 words. It should be uploaded under "Supporting Documents" in the InTouch+ Application Form tab and sent electronically to Ms Valentina Semkova, the Scientific Secretary of the event (see contact details

below), not later than **1 July 2026**. Authors will be notified of the acceptance of their proposed presentations by **15 July 2026**.

Submission of a paper should be confirmed, together with the submission of the main application via the InTouch+ platform, by **1 July 2026**.

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. 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 by submitting an abstract and delivering an oral presentation during the event.

The application for financial support should be made, together with the submission of the application, by **1 July 2026**.

Visas

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

IAEA Contacts

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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.

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

www.iaea.org/events/**EVT2504029**