



IAEA

International Atomic Energy Agency
Atoms for Peace and Development

Technical Meeting on Safety and Operational Considerations in the Use of Advanced Technologies at Research Reactors

**IAEA Headquarters
Vienna, Austria**

30 September - 4 October 2024

Ref. No.: EVT2303689

Information Sheet

Introduction

The International Atomic Energy Agency (IAEA) Safety Standards Series No SSR-3, Safety of Research Reactors recognizes that technology and scientific knowledge advance, and that nuclear safety and the adequacy of protection against radiation risks need to be considered in the context of the present state of knowledge. While items important to safety in a research reactor shall preferably be of a design that has previously been proven in equivalent applications, this does not override the need for safety to be enhanced by the use of new or improved designs and technology, subject to appropriate qualification, testing and safety analysis.

To manage obsolescence, many research reactors worldwide have modernized structures, systems and components (SSCs) or initiated projects to do so. These include use of digital instrumentation and control systems (I&C). The IAEA has published a Safety Guide entitled *Instrumentation and Control Systems and Software Important to Safety for Research Reactors* (IAEA Safety Standards Series No. SSG-37 (Rev.1), Vienna, 2023) and Nuclear Energy Series Guide *Digital Instrumentation and Control Systems for New and Existing Research Reactors* (NR-G-5.1, Vienna, 2021), which also address the modernization of I&C systems. Further, the nuclear industry could potentially also benefit from adopting artificial intelligence (AI) in areas such as remote surveillance, training, design optimization and data analytics. Planning and

implementing these activities should be aimed at maintaining and improving the safety and enhancing the availability of the reactor. The impact of these modifications on safety and operational aspects needs to be considered in all phases of implementation of these modifications including planning, design, safety assessment, regulatory oversight, commissioning, and operation.

In the context of the above, the IAEA is organizing this Technical Meeting on Safety and Operational Considerations in the use of Advanced Technologies at Research Reactors, scheduled from 30 September to 4 October 2024 at IAEA's Headquarters in Vienna, Austria.

Objectives

The purpose of the event is to provide Member States with a forum to discuss and exchange experience in design and operational safety, and regulatory oversight in the use of advanced technology, including digital control systems, robotics, and artificial intelligence at research reactors.

Target Audience

Participation in the workshop is subject to designation by Governments or national organizations. The workshop is open to participants from all IAEA Member States with existing or planned research reactors.

To ensure maximum effectiveness in the exchange of information, participants should be research reactors' managers, designers or persons responsible for planning, assessment or implementation of the use of advanced technologies in research reactors. Persons from regulatory bodies and technical support organizations responsible for safety of research reactors can also participate in the meeting.

Member States are strongly encouraged to identify suitable women participants.

Working Language

The working language of the event will be English.

Topics

In addition to presentations by the IAEA representatives, the event will include presentations by the participants on their experiences related to design and operational safety, and regulatory oversight in the use of advanced technologies, including AI, at research reactors.

The topics that are expected to be covered include:

- IAEA safety standards for research reactors;
- IAEA activities on the use of AI in the nuclear industry;
- Design safety considerations in the use of advanced technologies in research reactors;
- Safety in the use of digital I&C systems in research reactors, including safety analysis, review and assessment, installation, testing and operation of digital I&C systems;
- Operational safety aspects in the use of advanced technologies;
- Applications of AI in operation and maintenance, including for early detection of failures to enhance reliability and availability;
- Qualification, testing and assessment of advanced technologies to be used in research reactors;
- Developments on the use of AI for operation and safety of research reactors, including in the areas of design optimization, data analytics and other areas;
- Human factors considering the interfaces between human and AI applications;
- Regulatory framework for, and review and assessment of, the use of advanced technologies in research reactors.

The presentations will be followed discussions in working groups on various aspects related to the use of advanced technologies and their impact on the safety of research reactors. The meeting will also identify challenges in these areas as well as actions to address these challenges.

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 **10 June 2024**. 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 the above deadline.

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.

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.

The application for financial support should be made using the **Grant Application Form (Form C)** which has to be stamped, signed and submitted by the competent national authority to the IAEA together with the **Participation Form (Form A)** by **10 June 2024**.

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: <https://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.

Organization

Scientific Secretary

Ms Farhana Naseer

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Administrative Secretary

Ms Lissy Parokkil

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Fax: +43 1 26007
Email: L.Parokkil@iaea.org

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



Participation Form

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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 or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretary, Ms Farhana Naseer, Division of Nuclear Installation Safety, Department of Nuclear Safety and Security (Email: F.Naseer@iaea.org) and to the Administrative Secretary, Ms Lissy Parokkil, (Email: L.Parokkil@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: 10 June 2024

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 make a presentation?	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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Family name(s): (same as in passport)	First name(s): (same as in passport)	Mr/Ms:
Mailing address:	Tel.:	
	Fax:	
	Email:	
Date of birth (yyyy/mm/dd):	Nationality:	

1. Education (post-secondary):

Name and place of institution	Field of study	Diploma or Degree	Years attended from to	

2. Recent employment record (starting with your present post):

Name and place of employer/ organization	Title of your position	Type of work	Years attended from to	

3. Description of work performed over the last three years:

4. Institute's/Member State's programme in field of event:

Date: _____ **Signature of applicant:** _____

Date: _____ **Name, signature and stamp of Ministry of Foreign Affairs,
Permanent Mission to the IAEA or National Atomic Energy
Authority**
