IAEA
International Atomic Energy Agency
Atoms for Peace and Development

International Conference on Research Reactors:

Achievements, Experience and the Way to a Sustainable Future

IAEA Headquarters
Vienna, Austria

11–15 November 2024

Postponed from the original dates of
27 November – 1 December 2023

Organized by the
International Atomic Energy Agency (IAEA)

Announcement and Call for Papers

A. Background

The International Atomic Energy Agency (IAEA) has promoted and fostered exchange of scientific and technical information on research reactors for many years. An important mechanism for this exchange has been the periodic meetings, seminars, symposia and conferences organized by the IAEA. In recent years, the Agency has organized major international conferences on topics of interest to the research reactor community every four years. The last such meeting was the International Conference on Research Reactors: Addressing Challenges and Opportunities to Ensure Effectiveness and Sustainability, Buenos Aires, Argentina, November 2019.

Since the 1950s, research reactors have been centres of innovation and development for nuclear science and technology programmes around the world. Research reactors primarily produce neutrons, rather than generate power, for utilization in research, education and training, as well as for other applications in areas such as industry, environment, medicine and agriculture. In addition to the currently operating research reactors, a number of new research reactor programmes are being planned and developed. Feedback from IAEA activities demonstrates the importance of highlighting the achievements of research reactors and exchanging experiences that contribute to a sustainable future where research reactors continue to positively impact society. Ensuring safety, security, adequate resources, managing ageing of these facilities and strategic planning, all lead to effective and sustainable operation and utilization. Some other challenges include effective leadership and management, spent fuel management, and the need to establish nuclear infrastructure for new research reactor programmes.

In the above context, IAEA is organizing this international conference on research reactors, postponed from the original dates of 27 November – 1 December 2023. Like earlier IAEA conferences on research reactors, the forthcoming one will play a vital role in the national and international efforts to ensure maximization of benefits to society, with a primary focus on the achievements, experience and the way to a sustainable future for these facilities.

B. Purpose and Objectives

The purpose of the Conference is to foster exchange of information on operating and planned research reactors. It is a forum in which reactor operators, managers, users, regulators, designers and suppliers can share experience in all relevant areas including safety, security, operation, fuel front and back-end options, utilization, infrastructure and capacity building, and management, and showcase how achievements and experience attained with research reactors in these areas, contribute to a sustainable future for these facilities.

C. Themes and Topics

While most papers will focus on one of the principle topical areas below, authors are encouraged to consider integration with the other areas as applicable.

1) Utilization and Applications of Research Reactors

This session will cover the following topics:

- Achievements and experience in:

    - Production of radioisotopes for industry, medical diagnostics and cancer treatment;

- Neutron beam research, including scattering, imaging, and cold neutron beams;

- Neutron transmutation doping;

- Neutron activation analysis;

- Material and fuel testing;

- Other applications, including new developments.

- Strategies for effective and sustainable utilization, including regional and international cooperation;

- Building research networks associated with new and existing research reactors;

- Use of research reactors for development of innovative nuclear power technology, including SMRs, micro-reactors and fusion reactors;

- Use of research reactors to address climate change;

- Synergies and complementarities between small and large research reactors utilization programmes;

- Utilization programmes of sub-critical assemblies;

- Use of research reactors for education and training;

- Member States experience from Integrated Research Reactor Utilization Review (IRRUR) missions.

2) Research Reactor Operation and Maintenance

This session will cover the following topics:

- Achievements and experience in establishing effective operation programmes, (core management, operating procedures, organizational effectiveness, etc.);

- Good practices and lessons learned in maintenance;

- Ageing management programmes;

- Asset management;

- Methods and techniques of in-service inspections;

- Experience with major repair, refurbishment, and upgrade projects;

- Considerations for decommissioning in design and operation;

- Management of the transition between operation and decommissioning;

- Member States experience from Operation and Maintenance Assessment for Research Reactor (OMARR) and in-service inspection missions.

3) New Research Reactor programmes

This session will cover the following topics:

- Strategy for accessing research reactor facilities;

- Development of sustainable national nuclear infrastructure for new research reactor programmes;

- Effective application of the IAEA Milestones Approach for new research reactor programmes. Relevant topics include:

  - Assessment of needs, development of user communities, stakeholders' involvement and strategic planning;

  - Assessment of the national nuclear infrastructure and experience with the IAEA Integrated Nuclear Infrastructure Review for Research Reactor (INIR-RR) missions;

  - Safety and security considerations in different phases of a research reactor project;

  - Feasibility studies for new research reactor programmes;

  - Development of the functional and technical requirements for new research reactors.

- Proliferation resistance in the design of new research reactors;

- Status reports on new research reactor programmes in progress, experience and lessons learned.

4) Safety of Research Reactors

This session will cover the following topics:

- Experience in application of the IAEA Code of Conduct on the Safety of Research Reactors;

- Experience with application of IAEA Safety Standards;

- Regulatory oversight of research reactors, including licensing process and inspection programmes;

- Leadership and management for safety;

- Human factors in design and operation;

- Training and qualification programmes;

- Development and update of safety documentation;

- Safety analysis, including analysis of design extension conditions, approaches and methods;

- Ageing management and continued safe operation;

- Safety in utilization;

- Safety of modifications and upgrades, including digital instrumentation and control systems;

- Operational radiation protection and waste management;

- Operating experience feedback, including during pandemic;

- Periodic safety reviews, and implementation of identified safety upgrades;

- Planning for decommissioning in design and operation phases;

- Member States experience from Integrated Safety Assessment for Research Reactor (INSARR) missions.

5) Security of Research Reactors

This session will cover the following topics:

- Experience with the application of IAEA Nuclear Security Recommendations;

- Development of national regulatory framework and functions, including licensing, inspections, and enforcement of the nuclear security regime;

- Risk based approach including threat assessment, design basis threat, risk management, graded approach and defence in depth;

- Implementing and sustaining research reactor facility security systems:

    - Experience in planning, implementing, evaluating and sustaining physical protection system;

    - Addressing emerging threats, including drone and cyber-attacks;

    - Developing and maintaining nuclear security plans, including computer security;

    - Response and mitigation strategies.

- Building a robust security culture;

- Effective use of the Integrated Nuclear Security Support Plan (INSSP) process;

- Experience with Integrated Physical Protection Advisory Service (IPPAS) missions.

6) Research Reactor Fuel Management

This session will cover the following topics:

- In-core fuel management experience, related issues and lessons learned;

- Qualification of new fuels for research reactors;

- Fuel performance;

- Fuel handling including safety and security aspects;

- Strategies for spent fuel management, including wet and dry storage and transition from wet to dry, and alternatives to fuel reprocessing and repatriation;

- Highly Enriched Uranium (HEU) minimization efforts and experience from conversion projects.

7) Common Management Considerations for Research Reactors

This session will cover the following topics:

- Integrated management systems (IMS);

- Conduct of self-assessments and follow-up actions;

- Development and use of performance indicators;

- Interface between nuclear safety and security;

- Use of a graded approach in application of common management considerations, including safety requirements and security recommendations;

- Human resources development, including competence management, training, and succession planning;

- Operational and experimental data management and preservation;

- Configuration management;

- Management of facilities in extended shutdown (safety, security, surveillance and maintenance);

- Experience with ongoing and recently completed decommissioning projects.

Closing Session

The closing session will include a panel discussion which will summarize the principal observations made during the conference and address important issues raised by the audience. During this session, the Rapporteur of the conference and the session chairs will present summaries and highlights of relevant session discussions as well as the conclusions and recommendations of the conference.

D. Structure

The conference will consist of an opening plenary session, 7 topical sessions, and a closing plenary session. In addition, a forum on IAEA activities and services on enhancing research reactor safety, security, and operation and maintenance as well as on utilization of high-power research reactors in materials research and testing are scheduled as conference side meetings.

To meet its objectives, the conference will include:

- Oral presentations by the invited keynote speakers;

- Oral presentations to highlight specific areas within each topical session and stimulate discussion among conference participants;

- Posters presentations that present state-of-the-art information and knowledge in the topical area.

E. Target Audience

The conference targets a broad range of research reactor experts. It aims to bring together representatives from regulatory bodies, operating organizations, users, designers, suppliers, research organizations and other relevant stakeholders.

F. Call for Papers

Due to the postponement of the event from its original dates, no additional synopses submissions will be considered at this time. Submissions already accepted for this conference at its original date (from 27 November to 1 December 2023) will remain valid.

F.1 Proceedings

Following the conference, the IAEA will publish a summary report. The full proceedings will be made available to read online.

G. Participation and Registration

All persons wishing to participate in the event must be designated by an IAEA Member State or should be a member of an organization that has been invited to attend. The list of invited organizations is available on the event web page (see Section P).

Registration through the InTouch+ platform:

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

- Persons with an existing NUCLEUS account can **sign in here** 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 'Basic Profile' or under 'Complete Profile' and upload the relevant supporting documents;
- Search for the relevant event (**EVT2102344**) 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 Conference.Contact-Point@iaea.org);
- Based on the data input, the InTouch+ platform will automatically generate Participation Form (Form A);
- Submit their application.

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

NOTE: Should prospective participants wish to register for the event, the application needs to be submitted by the specified deadline (see section N).

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.

If it is not possible to submit the application through the InTouch+ platform, prospective participants are requested to contact the IAEA's Conference Services Section via email: Conference.Contact-Point@iaea.org.

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.

H. Expenditures and Grants

No registration fee is charged to participants.

Due to the postponement of the event from its original date, no additional applications for financial support will be considered at this time. Applications already accepted for this conference at its original date (from 27 November to 1 December 2023) will remain valid.

I. Distribution of Documents

A preliminary and final programme will be made available on the conference web page (see Section P) prior to the start of the conference. The electronic compilation of synopses will be accessible free of charge to participants registered for the conference.

J. Exhibitions

A limited amount of space will be available for commercial vendors' displays/exhibits during the conference. Interested parties should contact the Scientific Secretariat by email RR-Conference-2024.Contact-Point@iaea.org by **31 July 2024**.

K. Working Language

The working language of the conference will be English. All communications must be sent to the IAEA in English.

L. Venue and Accommodation

The conference will be held at the Vienna International Centre (VIC), where the IAEA's Headquarters are located. 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.

Participants must make their own travel and accommodation arrangements. Hotels offering a reduced rate for participants are listed on https://www.iaea.org/events. Please note that the IAEA is not in a position to assist participants with hotel bookings, nor can the IAEA assume responsibility for paying fees for cancellations, re-bookings and no-shows.

M. Visas

Participants who require a visa to enter Austria should submit the necessary application to the nearest diplomatic or consular representative of Austria as early as three months but not later than 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.

For more information, please see the Austria Visa Information document available on https://www.iaea.org/events.

N. Key Deadlines and Dates

Submission of Form A only (no paper submission, no grant request) through the InTouch+ platform	**4 November 2024**

O. Conference Secretariat

General Postal Address and Contact Details of the IAEA:

International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA
Tel.: +43 1 2600
Fax: +43 1 2600 2007
Email: Official.Mail@iaea.org

Scientific Secretaries of the Conference:

Mr Danas Ridikas
Physics Section, Division of Physical and Chemical Sciences
Department of Nuclear Sciences and Applications
Tel.: +43 1 2600 21751

Mr Petr Chakrov
Research Reactor Section, Division of Nuclear Fuel Cycle and Waste Technology
Department of Nuclear Energy
Tel.: +43 1 2600 25807

Mr Amgad Shokr
Research Reactor Safety Section, Division of Nuclear Installation Safety
Department of Nuclear Safety and Security
Tel.: +43 1 2600 22400

Email: RR-Conference-2024.Contact-Point@iaea.org

Administration and Organization:

Mr Tom Danaher
Conference Services Section
Division of Conference and Document Services
Department of Management
IAEA-CN-319; EVT2102344
Tel.: +43 1 2600 21317
Email: Conference.Contact-Point@iaea.org

Subsequent correspondence on scientific matters should be sent to the Scientific Secretaries and correspondence on administrative matters to the IAEA's Conference Services Section.

P. Conference Web Page

Please visit the IAEA conference web page regularly for new information regarding this conference.