



**International Conference on Research Reactors:  
*Addressing Challenges and Opportunities to Ensure  
Effectiveness and Sustainability***

**Buenos Aires, Argentina  
25–29 November 2019**

Organized by the  
**International Atomic Energy Agency (IAEA)**  
Hosted by the  
**Government of Argentina**  
through the  
**National Atomic Energy Commission (CNEA)**

**Announcement and Call for Papers**

**A. Background**

The International Atomic Energy Agency (IAEA) has promoted and fostered the exchange of scientific and technical information on research reactors for many years. An important mechanism for this exchange has been the IAEA's organization of periodic meetings, seminars, symposia and conferences. Most recently, the IAEA has organized major international conferences on topics of interest to the research reactor community every four years. The last such event was the International

Conference on Research Reactors: Safe Management and Effective Utilization held in Vienna in November 2015.

Since the 1950s, hundreds of research reactors around the world have served society and continued to be a cornerstone of the development of nuclear science and technology. In addition to the currently operating facilities, a number of new research reactor programmes are being planned and developed. Feedback from the IAEA's activities in this area demonstrates the importance of ensuring the effectiveness and sustainability of research reactors in view of the challenges that continue to be faced by the research reactor community. These challenges are mainly related to the need to ensure regulatory effectiveness, manage the ageing of the facilities and staff, and enhance utilization programmes and strategic planning. Other challenges include effective leadership and management, spent fuel management, and decommissioning as well as the need to establish sustainable national nuclear infrastructure for new research reactor programmes.

In the above-mentioned context, the IAEA is organizing this new international conference on research reactors, which will be hosted by the Government of Argentina in cooperation with the country's National Atomic Energy Commission (CNEA). Like earlier IAEA conferences on research reactors, the forthcoming one will play a vital role in national and international efforts to ensure maximization of the benefits that such facilities bring to society, with a primary focus on their effectiveness and sustainability.

## **B. Objectives**

The purpose of this conference is to foster the exchange of information on operating and planned research reactors, and to provide a forum in which reactor operators, managers, users, regulators, designers and suppliers can share experiences and address challenges and opportunities, with a view to ensuring effectiveness and sustainability in all relevant areas, including safety, security, operation, utilization, infrastructure, and management.

## **C. Format and Topics**

A preliminary programme will be made available on the conference web page (see Section M) well in advance of the conference. The final programme and the *Book of Extended Synopsis* will be available upon registration at the conference.

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

In order to meet its objectives, the conference will feature:

- Presentations by the invited keynote speakers;
- Presentations to highlight specific areas within each topical session and stimulate discussion among conference participants; and

- Poster presentations that present state-of-the-art information and knowledge related to each of the topical areas.

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

## **Session 1: Utilization and Applications of Research Reactors**

This session will cover the following topics:

- Challenges and opportunities in:
  - Production of medical and industrial radioisotopes
  - Neutron beam research
  - Neutron imaging
  - Irradiation services and products
  - Neutron activation analysis
  - Materials and fuel testing
  - Other applications, including new developments
- Synergies and complementarities between utilization programmes of small and large research reactors
- Utilization programmes for subcritical assemblies
- Use of research reactors for education and training
- Strategies for effective and sustainable utilization, including regional and international cooperation
- Use of research reactors for the development of nuclear science and technology, including support for nuclear power

## **Session 2: Research Reactor Operation and Maintenance**

This session will cover the following topics:

- Effective operation and maintenance programmes, including lessons learned and good practices
- Ageing management programmes, including methods and techniques for in-service inspections
- Experience with major repair, refurbishment, and upgrade projects
- Programmes for long term operation
- Experience and plans for core conversion projects
- Management of the transition between operation and decommissioning
- Member States' experiences with Operation and Maintenance Assessment for Research Reactors (OMARR) missions

### **Session 3: New Research Reactor Programmes**

This session will cover the following topics:

- Strategy for accessing research reactor facilities, including new builds
- Development of sustainable national nuclear infrastructure for new research reactor programmes
- Effective application of the IAEA's Milestones approach for new research reactor programmes. Relevant topics include:
  - Assessment of needs, development of user community, stakeholder involvement and strategic planning
  - Assessment of the national nuclear infrastructure and experiences with the IAEA's Integrated Nuclear Infrastructure Review for Research Reactors (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
- Status reports on new research reactor programmes in progress, experience and lessons learned

### **Session 4: Safety of Research Reactors**

This session will cover the following topics:

- Effective application of the IAEA Code of Conduct on the Safety of Research Reactors
- Experiences with application of the IAEA safety standards that are relevant to subcritical assemblies
- Regulatory supervision of research reactors, including licensing and inspection programmes
- Leadership and management for safety
- Interaction of human, technological, and organizational factors
- Training and qualification programmes
- Implemented or planned upgrades identified through safety reassessments based on the lessons learned from the Fukushima-Daiichi accident
- Safety and licensing documentation
- Safety analysis approaches, methods, and computational tools
- Ageing management and safety assessment for long term operation
- Safety in utilization and modifications, including licensing of digital instrumentation and control systems
- Operational radiation protection and waste management
- Operating experience feedback
- Periodic safety reviews
- Member States' experiences with Integrated Safety Assessment of Research Reactors (INSARR) missions

## **Session 5: Security of Research Reactors**

This session will cover the following topics:

- Effective use of the Integrated Nuclear Security Support Plan (INSSP) process
- Experiences with application of the IAEA's *Nuclear Security Recommendations on Radioactive Material and Associated Facilities* (IAEA Nuclear Security Series No. 14):
  - Development of regulatory basis
  - Regulatory oversight
  - Processes for 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:
  - Experiences with planning, implementing and sustaining physical protection systems
  - Challenges of addressing emerging threats
  - Developing and maintaining security plans, including computer security
  - Response and mitigation strategies
- Experiences with Integrated Physical Protection Advisory Service (IPPAS) missions

## **Session 6: Research Reactor Fuel Management and Decommissioning**

This session will cover the following topics:

- Fuel management experience, related issues and lessons learned in:
  - Qualification of new fuels for research reactors
  - Fuel performance
  - Fuel handling, including safety, security and operational performance of the facilities
- Strategies for spent fuel management, including fuel take-back programmes
- Decommissioning planning, including considerations during a facility's lifetime
- Experiences with ongoing and recently completed decommissioning projects

## **Session 7: Common Management Considerations**

This session will cover the following topics:

- Effective integrated management system, including quality assurance programmes
- Safety and security culture
- 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
- Operating and experimental data management and preservation
- Configuration management
- Management of facilities in extended shutdown (safety, security, surveillance and maintenance)

## 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 the session discussions as well as the conclusions and recommendations of the conference.

## D. Contributed Papers and Interactive Presentations

Concise papers on issues falling within the topics outlined in Section C above may be submitted as contributions to the conference. All papers, apart from invited papers, must present original work and should not have been published elsewhere.

### (a) Submission of extended synopses

Anyone wishing to present a paper at the conference is requested to submit first an extended synopsis between 600 and 800 words (not exceeding two pages, including figures, tables and references) in electronic format. The extended synopsis should give enough information on the contents of the proposed paper to enable the Programme Committee to evaluate it. Authors should state to which of the topics outlined in Section C their contribution relates.

Instructions on how to upload the extended synopses to the conference's web browser-based file submission system (IAEA-INDICO) will be available on the conference web page (see Section M below) as of **1 February 2019**. The extended synopses **must** be submitted through this system by **28 April 2019**. No other form of submission will be accepted. The extended synopsis should also be submitted, together with a completed Participation Form (Form A) and Form for Submission of a Paper (Form B), to the competent official authority (see Section E) for subsequent electronic transmission to the IAEA ([Official.Mail@iaea.org](mailto:Official.Mail@iaea.org)), to be received by the IAEA by **28 April 2019**. In addition, the abstracts must be sent electronically to: [RR-Conference-2019.Contact-Point@iaea.org](mailto:RR-Conference-2019.Contact-Point@iaea.org).

Introductory and general matters should not be included.

### (b) Acceptance of papers for oral or poster presentation

The extended synopsis will be considered only if the Participation Form (Form A) and Form for Submission of a Paper (Form B) have been received by the above-mentioned deadline and through the established official channels.

A limited number of extended synopses will be selected for submission of a full paper and, consequently, for either oral or poster presentation, which should be delivered during the sessions of the conference.

Authors will be notified by **30 June 2019** as to whether their extended synopses have been accepted and, if so, whether the full papers should be delivered as oral or poster presentations.

Authors will be asked to provide their full-length papers (a maximum of eight pages) by **30 September 2019**. Guidelines and a template for the preparation and submission of full papers and posters will be made available on the conference web page. The full paper must be submitted through IAEA-INDCO system in the same way as the extended synopses.

The Secretariat reserves the right to exclude papers that do not comply with its quality standards or that do not apply to one of the topics outlined in Section C above.

### **(c) Proceedings**

The proceedings of the conference will be published by the IAEA and made available on the IAEA website soon after the conference. The proceedings will include the conference conclusions and recommendations, session summaries, and the full-papers.

## **E. Participation and Registration**

The conference is directed at a broad range of experts in the area of research reactors, and aims to bring together the world's senior representatives from regulatory bodies, operating organizations, users, designers, suppliers, research organizations and other relevant stakeholders.

All persons wishing to participate in the conference are requested to send a completed Participation Form (Form A) and the Grant Application Form (Form C) to their competent national authority (e.g. Ministry of Foreign Affairs or National Atomic Energy Authority), or to one of the organizations invited to participate, for subsequent electronic transmission to the IAEA ([Official.Mail@iaea.org](mailto:Official.Mail@iaea.org)).

A participant will be accepted only if the Participation Form is transmitted through the competent national authority of a Member State of the IAEA or by an organization invited to participate.

Participants whose official designations have been received by the IAEA will receive from the IAEA further information approximately three months before the opening of the conference. This information will also be posted on the conference web page (see Section M).

## **F. Expenditures and Grants**

Participants will not be charged any registration fee.

The IAEA is generally not in a position to bear the travel and other costs of designated participants in the conference. The IAEA has, however, limited funds at its disposal to help cover the cost of attendance of selected specialists from Member States eligible to receive technical assistance under the IAEA's technical cooperation programme. Such assistance may be offered upon specific request to

normally one participant per country provided that, in the IAEA's view, the participant on whose behalf assistance is requested will make an important contribution to the conference.

If governments wish to apply for a grant on behalf of one of their specialists, they should address specific requests to the IAEA to this effect. Governments should ensure that applications for grants are:

1. Submitted by **28 April 2019**;
2. Accompanied by a completed and signed Grant Application Form (Form C);
3. Accompanied by a completed Participation Form (Form A).

Applications that do not comply with the above conditions cannot be considered.

Approved grants will be issued in the form of a lump sum payment that usually **covers only part of the cost of attendance**.

## **G. Working Language**

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

## **H. Conference Venue and Accommodation**

Detailed information on accommodation and other relevant matters will be sent directly to all designated participants approximately three months before the opening of the conference. This information will also be made available on the conference web page (see Section M below) as soon as possible.

## **I. Exhibition**

A limited amount of space will be available for commercial vendors' displays/exhibits during the conference. Further information will be posted in due course on the conference web page (see Section M).

## **J. Visas**

Designated participants who require a visa to enter Argentina should submit the necessary application to the nearest diplomatic or consular representative of Argentina at least four weeks before they travel to Argentina.

## **K. Key Deadlines**

|   |                          |
|---|--------------------------|
| Submission of Form for Submission of a Paper (Form B) and synopses: | <b>28 April 2019</b>     |
| Submission of Grant Application Form (Form C):                      | <b>28 April 2019</b>     |
| Notification of acceptance of synopses:                             | <b>30 June 2019</b>      |
| Submission of accepted full paper (8 pages max.):                   | <b>30 September 2019</b> |

## **L. Conference Secretariat**

### **General contact details of the Conference Secretariat:**

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### **Scientific Secretaries of the conference:**

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

## **M. Conference Web Page**

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

<https://www.iaea.org/events/conference-on-research-reactors-2019>