



International Conference on Applications of Radiation Science and Technology (ICARST-2017)

**IAEA Headquarters
Vienna, Austria**

24–28 April 2017

Ref. No.: IAEA-CN-249

Announcement and Call for Papers

A. Background

The saga of the radiation sciences goes back to the astonishing discoveries by Röntgen and the Curies at the turn of the twentieth century. Driven initially by the quest to comprehend the complex effects of radiation fields on chemical processes, radiation chemistry, in particular, has emerged as a valuable tool for understanding the intricate chemical reactions of importance to a variety of disciplines. It has also found wide-ranging commercial applications in such areas as materials processing, health care, food and agriculture. While the development of ultrafast techniques such as pulse radiolysis has allowed for the exploration of important chemical processes, the simultaneous technological development of high intensity gamma radiation sources and high powered electron beam accelerators has assured the radiation sciences' ongoing tryst with industry, leading to the successful commercial utilization of many of the applications developed by scientists and researchers. The International Atomic Energy Agency (IAEA), working in close partnership with its Member States as well as with professional scientific bodies and the industry, has striven to maximize the contribution of radiation sciences and technologies towards the achievement of the Member States' development priorities in a safe manner.

While acknowledging the many innovations and accomplishments achieved in the field of radiation sciences so far, it is now time to take a comprehensive look at their status in academia and industry in

the years ahead and their ability to meet the challenges of contemporary times. Radiation scientists are currently engaged in addressing issues related to producing advanced high performance materials through 'green' industrial processes ensuring cleaner environment, attaining a thorough understanding of the chemical effects of radiation under extreme conditions (which is important for extending the lifetime of present nuclear reactors, making their fuel cycles safer and secure to operate), and overcoming impediments regarding the transportation and storage of waste materials (which requires novel approaches to address the complicated chemistry at interfaces). Radiation technologists on the other hand are faced with such tremendous challenges as ensuring the safe and reliable operation of large radiation facilities, implementing requisite international standards for process control, ensuring the continued supply and transport of large cobalt-60 consignments across continents, and developing a new generation of high power electron beam accelerators and X-ray sources for emerging applications. Besides radiation processing applications, there are other radiation technologies such as the use of radiotracers to improve and optimize the performance of industrial processes, as well as to study environmental processes, and the use of nucleonic measurement systems to control the quality of products.

B. Objectives

The first IAEA International Conference on Applications of Radiation Science and Technology (ICARST-2017) will provide a unique opportunity to achieve the following specific objectives:

- To review:
 - key developments in the applications of radiation science and technology as well as the 'state of the science' in this field;
 - national, regional and global initiatives for implementing proven industrial applications that lead to socio-economic benefits and strengthen capacity building in Member States; and
- To serve as a composite platform through which industry and academia can foster new initiatives for ensuring the success of radiation technologies in meeting the emerging challenges in various areas.

C. Format and Topics

A series of plenary sessions will address the topics listed below, and the conference programme will include invited keynote speeches from representatives of academia and industry, oral presentations and panel discussions. A poster session will be organized to allow ample time for discussion and interaction among participants. A final round table session will review the main conclusions drawn in the plenary sessions and will summarize recommendations for the future development of radiation sciences and technologies.

The scope of the conference is meant to cover, but is not limited to, the following topical areas:

- Recent advances in radiation chemical sciences

- Current radiation technology trends
- Setting up of new radiation facilities
- Production and transportation of cobalt-60
- New generation electron beam accelerators and X-ray sources
- Radiation sterilization
- Radiation modification of polymeric materials
- Radiation chemistry in the synthesis and design of nanomaterials
- Development of advanced materials using radiation technology
- Surface curing using radiation technologies
- Radiation treatment of gaseous pollutants, industrial wastewaters, municipal wastewater, sludge and emerging organic pollutants
- Use of radiation technology for cultural heritage imaging and preservation
- Radiation chemical aspects related to water coolant systems in nuclear reactors, fuel reprocessing and nuclear waste management
- Operational experience from radiation facility operations
- Radiation dosimetry
- Implementing quality management practices for the control of radiation processes
- New generation safety and control features in radiation facilities
- Applications of tracers and radiotracers for studying industrial and environmental processes
- Thin layer activation method for wear measurement
- Nucleonic control and measurement systems
- Radiation detection techniques and equipment
- Computational fluid dynamics and numerical modelling of residence time distribution
- Radiation based imaging technologies
- Economic aspects of radiation technologies vis-à-vis conventional technologies
- Educational tools and methods for human resource development in this field

D. Target Audience

Radiation science and technology is a multidisciplinary area that covers many branches such as radiation-related physics, chemistry, materials science, biology, engineering and industrial applications. Accordingly, the target audience for this conference comprises but is not limited to:

- Radiation technology professionals
- Entrepreneurs or stakeholders involved in applications of radiation technologies
- Research scientists engaged in radiation research
- Policy makers and regulators

E. Expected Outcomes

The conference will strengthen contacts and foster cooperation among radiation science researchers, radiation technology providers, radiation facility operators and the coordinators of academic programmes in the radiation sciences, leading to a comprehensive review of the status of radiation sciences in industry and academia. The conference is expected to generate ideas that will form the basis of future IAEA programmes in the area of radiation technologies.

F. Abstracts, Poster Presentations and Proceedings

All papers — other than invited keynote papers — must present original work and must not have been published elsewhere.

Persons who wish to give presentations (oral or poster presentations) at the conference must submit an abstract on one of the topics listed under Section C. The abstract should give enough information on the contents of the proposed paper to enable the Programme Committee to evaluate it. Introductory and general matters should not be included. The accepted abstracts will be reproduced in unedited form in the electronic Compilation of Abstracts which will be distributed to all participants at the conference.

F.1 Submission of Abstracts

Abstracts must be sent **in electronic format** (no paper copies) directly to the IAEA. Instructions on how to upload the abstracts to the conference's web browser-based file submission system (IAEA-INDICO) will be available on the conference web page (see Section P) as of **February 2016**. The abstracts **must** be submitted through this system by **30 June 2016**. No other form of submission will be accepted.

The submission should indicate to which of the topics outlined in Section C above it relates and the abstract content should be sequenced accordingly:

- Background of the study;
- Methodology;
- Results; and
- Conclusion.

The abstract:

- should be a maximum of 500 words (including title);
- should not include more than one figure, graph or table;
- should not include references; and
- must be written and submitted using the abstract template available from the conference web page (see Section P).

In addition, authors must submit the following two forms to their appropriate governmental authority (see Section G) for transmission to the IAEA. These forms must be received by the IAEA no later than **30 June 2016**:

- Participation Form (Form A); and
- Form for Submission of a Paper (Form B).

IMPORTANT: The electronically received abstracts will be considered by the Programme Committee only if these two forms have been received by the IAEA through the established official channels (see Section G).

Authors should state to which of the topics outlined in Section C their contribution relates.

F.2 Acceptance of Abstracts for Oral or Poster Presentation

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

Authors will be informed **by the end of July 2016** as to whether their abstracts have been accepted for oral or poster presentation. The abstracts, if accepted by the Programme Committee, will also be reproduced unedited in the electronic Compilation of Abstracts which will be distributed to all participants at the conference.

F.3 Proceedings

The full papers of the best abstracts must be submitted before end of **October 2016** for publication in the Proceedings.

G. Participation and Registration

All persons wishing to participate in the conference are requested to **register online in advance** through the conference web page (see Section P below). In addition, they are required to send a completed Participation Form (Form A) and, if applicable, the Form for Submission of a Paper (Form B) 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).

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.

H. Expenditures and Grants

No registration fee will be charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the conference. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants. 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 **30 June 2016**;
2. Accompanied by a completed and signed Grant Application Form (Form C); and
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**.

I. Distribution of Documents

A preliminary programme will be posted on the IAEA conference web page (see Section P) as soon as possible. The final programme and the electronic Compilation of Abstracts will be available free of charge upon registration at 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 at: icarst2017@iaea.org by **30 June 2016**.

K. Working Language

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

L. Conference Venue and Accommodation

The conference will be held at the IAEA's Headquarters in Vienna, Austria. Participants must make their own travel and accommodation arrangements. Hotels offering a reduced rate for conference participants will be listed on the conference web page (see Section P). Please note that the IAEA is not in a position to assist participants with hotel bookings, nor can the IAEA assume responsibility for paying cancellation fees or for re-booking and no shows.

M. Visas

Designated 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.

N. Key Deadlines

Submission of abstract (including Forms A and B)	30 June 2016
Submission of grant application (Forms A and C)	30 June 2016
Notification of acceptance of abstract	end of July 2016
Submission of full papers	end of October 2016

O. Conference Secretariat

General contact details of the Conference Secretariat:

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

P. Conference Web Page

Please visit the following web page regularly for new information regarding this conference:
<http://www-pub.iaea.org/iaeameetings/50814/International-Conference-on-Applications-of-Radiation-Science-and-Technology-ICARST-2017>