

الوكالة الدرية للطاقة الذرية 国际原子能机构 International Atomic Energy Agency Agence internationale de l'énergie atomique Международное агентство по атомной энергии Organismo Internacional de Energía Atómica

Vienna International Centre, PO Box 100, 1400 Vienna, Austria Phone: (+43 1) 2600 • Fax: (+43 1) 26007 Email: Official.Mail@iaea.org • Internet: https://www.iaea.org

In reply please refer to: EVT2103079 Dial directly to extension: (+43 1) 2600-22808/24236

La Secretaría del Organismo Internacional de Energía Atómica (OIEA) saluda a los Estados Miembros del OIEA y tiene el honor de señalar a su atención la celebración de la **Reunión Técnica sobre Sinergias entre los Avances en Tecnologías de Fusión Nuclear y Tecnologías Avanzadas de Fisión Nuclear** (denominada en adelante el "evento"), que tendrá lugar en la Sede del OIEA en Viena (Austria), con la posibilidad de participar virtualmente a través de Webex, del **6 al 10 de junio de 2022**.

La finalidad del evento es servir de foro para el intercambio de información sobre actividades relacionadas con las sinergias en cuanto al desarrollo de tecnología entre la fisión y la fusión nucleares para la producción de energía a escala nacional e internacional, así como para presentar un examen actualizado de tales actividades. Durante el evento también se presentará la labor realizada hasta la fecha por la Secretaría.

En la reseña informativa adjunta se ofrecen más detalles sobre el evento.

El evento se celebrará en inglés.

Se invita a los Estados Miembros a designar a una o más personas para que participen en este evento en representación de su Gobierno y se los alienta encarecidamente a que seleccionen con ese fin a mujeres cualificadas.

Por lo general, el OIEA no está en condiciones de sufragar los gastos de viaje ni de otra índole de los participantes en el evento. No obstante, dispone de fondos limitados para ayudar a cubrir los gastos de asistencia de determinados participantes. Esa ayuda puede ofrecerse normalmente, previa solicitud expresa, a un participante por país siempre que, en opinión del OIEA, la persona para la que se solicite pueda hacer una contribución importante al evento. La solicitud de apoyo financiero debe presentarse en el momento de la designación de los participantes mediante el formulario de solicitud de subvención adjunto (Formulario C).

Cabe señalar que el OIEA no paga ninguna indemnización por daños o pérdida de efectos personales. Tampoco proporciona seguro médico a los participantes en eventos del OIEA. Por lo tanto, se recomienda que estas personas adopten las medidas necesarias para contratar por su cuenta un seguro privado. No obstante, el OIEA cubrirá mediante un seguro los accidentes y las enfermedades claramente relacionados con los servicios prestados al OIEA.

Las designaciones deben presentarse al OIEA por conducto de la autoridad nacional competente (el Ministerio de Relaciones Exteriores, la Misión Permanente ante el OIEA o la Autoridad Nacional de Energía Atómica), a más tardar el **1 de marzo de 2022**, por medio del formulario de participación adjunto (Formulario A). Los formularios de participación debidamente cumplimentados y autorizados

deben enviarse por correo electrónico a la dirección <u>Official.Mail@iaea.org</u> o por fax al número: +43 1 26007 (no se precisan copias impresas). Asimismo, han de enviarse copias por correo electrónico a los Secretarios Científicos del evento, Sr. Vladimir Kriventsev, División de Energía Nucleoeléctrica, Departamento de Energía Nuclear (correo electrónico: <u>V.Kriventsev@iaea.org</u>), y Sra. Sehila M. González de Vicente, División de Ciencias Físicas y Químicas, Departamento de Ciencias y Aplicaciones Nucleares (correo electrónico: <u>S.M.Gonzalez-De-Vicente@iaea.org</u>), y a la Secretaria Administrativa, Sra. Khurshida Abdurasulova (correo electrónico: <u>K.Abdurasulova@iaea.org</u>). Una vez recibidas las designaciones oficiales, los Secretarios Científicos del evento contactarán directamente a los participantes en relación con otras cuestiones de organización, como los detalles del viaje, según proceda.

En caso de que los Gobiernos desearan, además, nombrar uno o más observadores para que prestasen asistencia y asesoramiento a los participantes designados, se les ruega que comuniquen al OIEA el nombre y las señas de esos observadores a más tardar en la fecha antes indicada. De conformidad con las normas establecidas, corresponde a los Gobiernos sufragar los gastos de asistencia de los observadores que envíen a los eventos del OIEA. Este no paga ninguna indemnización por daños o pérdida de efectos personales de los observadores, ni por enfermedad, lesión o fallecimiento durante los viajes o en relación con su asistencia a los eventos del OIEA.

La Secretaría del Organismo Internacional de Energía Atómica aprovecha esta oportunidad para reiterar a los Estados Miembros del OIEA el testimonio de su distinguida consideración.



6 de enero de 2022

Documentación adjunta (en inglés únicamente):

Reseña informativa

Formulario de participación (Formulario A)

Formulario de presentación de memorias (Formulario B)

Formulario de solicitud de subvención (Formulario C)



# Technical Meeting on Synergies Between Nuclear Fusion Technology Developments and Advanced Nuclear Fission Technologies

IAEA Headquarters, Vienna, Austria and virtual participation via Cisco Webex

6–10 June 2022

Ref. No.: EVT2103079

# **Information Sheet**

# Introduction

The International Atomic Energy Agency (IAEA) aims to support and strengthen its Member States' capabilities in the field of technology development of nuclear fission and fusion for energy production.

With the aim to address the resolution of the IAEA General Conference GC64 and the Standing Advisory Group on Nuclear Energy (SAGNE) recommendation and taking into account the worldwide acceleration towards the early deployment of nuclear fusion for energy production, it is the appropriate time for the IAEA to launch a new initiative aimed at addressing the great engineering challenge of fusion, by promoting transfer of technology and know-how from fission to fusion. In other words, the IAEA is in the best position to identify and analyse, with an international perspective, all the possible synergies on technology development and deployment between nuclear fission and nuclear fusion.

The fission based nuclear power plants have a long history of development and operational experience; the advanced nuclear fission reactors are at an early stage of deployment and several lessons are being learned in the process of their development. It is expected that the development of future fusion based

nuclear power plants for energy production will face many challenges already well-known and addressed for the deployment of nuclear fission power technology, from design to construction to decommissioning through operation, including, infrastructure needs and economic competitiveness. While the fusion technology is rapidly maturing through the realization of large experimental facilities like ITER and other innovative fusion machines (also funded by the private sector), it is of paramount importance to develop a thorough techno-economic understanding of the subject matter for an optimized and well-informed development path of nuclear fusion power plants.

Member States and stakeholders will benefit from better understanding of the synergies between fission and fusion; they will also get acquainted of the status of cooperation between the two communities and will receive recommendations on how to enhance relevant technology and knowledge transfers from fission to fusion.

# **Objectives**

Objectives of the event are:

- Promote and facilitate the exchange of information on synergies between advanced nuclear fission and fusion technologies;
- Summarize the current status of cooperation between fission and fusion technology development, presenting up-to-date information and material;
- Present the work already done by the chapter leaders to develop the NES publication;
- Document the discussions and major findings among subject matter experts to support Member States to better understand and benefit from the synergies between fission and fusion;
- Distribute the tasks to finalize the different chapters/sections of the document.

The NES publication will provide insight on all these areas as well as examples of good practices and lessons learned and will offer suggestions to accelerate the transfer of technology, knowledge, and know-how from fission to fusion.

## **Target Audience**

The meeting is open to all Member States involved or interested in the research and development of fission and/or fusion technology and their synergies, including government organizations (policymakers, analysts, regulators, and R&D agencies) and industry stakeholders (vendors, engineering companies, plant operators and technology developers).

## Working Language

The working language of this meeting will be English with no interpretation provided. All communications, abstracts and papers must be submitted in English.

## **Expected Outputs**

The expected outputs are:

- Recommendations to the IAEA on how to enhance relevant technology and knowledge transfers from fission to fusion;
- A first draft (extended abstracts from 2 to 5 pages) per topic to develop the chapters for the IAEA publication describing the current status of cooperation between fission and fusion technology development.

## Topics

The event will consist of presentations and discussions at technical sessions. All contributions will be categorized based on the following topics:

- 1. Status of fusion technology: needs and challenges
- 2. Scenario studies: nuclear fusion reactors as an element of future energy systems
- 3. Technology, safety, security and safeguardability for synergies and know-how transfer:
  - Energy conversion systems

- Structural materials and circulating fluids (Neutron irradiation resistant materials, Temperature stable materials, Compatibility with circulating fluids and mitigation strategies, Protective coatings, Corrosion resistant materials, Fluid handling and purification)

- Waste technology
- Decommissioning by design

- Fuel cycle

- Detritiation technologies
- Remote handling
- Diagnostics, instrumentation, and other experimental techniques
- Nuclear data
- Modelling and simulations

- Design Safety, Safety Analysis and Regulation (Introduction and scope, Regulatory, Design Safety, Safety Analysis, External Hazards, Emergency Preparedness and Response)

- Project management and management systems
- Manufacturing and supply chain
- Construction and commissioning
- Operation and maintenance
- Safeguards
- 4. Economic and market considerations
  - Economics of energy systems
  - Lessons learned from 70 years of nuclear fission reactors deployment
  - Economic and market considerations on nuclear fusion power plants
- 5. Human Resources and Knowledge management
  - Mapping human resources needs and identification of common professional competencies
  - Knowledge management strategies and techniques
- 6. Fission-fusion hybrid systems
- 7. General considerations on needed infrastructure
- 8. Stakeholder involvement
  - Start-ups
  - Public acceptance and support
- 9. Considerations and suggestions for future work in the field.

# **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 **1 March 2022**. 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 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 <u>Agency's Personal Data and Privacy Policy</u> and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required.

# **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 **1 March 2022**.

## Venue

The event will be held at the Vienna International Centre (VIC), where the IAEA's Headquarters are located. Optionally, virtual participation via Cisco Webex will be provided. 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:

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.

# **Extended Abstracts**

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 extended abstract of their work on the session topics listed above.

The extended abstract should contain title, contributing author(s) names and affiliation, must be written in English, and provide sufficient information on the contents of the proposed paper for evaluation. The extended abstract will be reviewed as part of the selection process for presentations. The extended abstract (2-5 pages in length) should be written in Microsoft Word format using the attached template. It should be uploaded to INDICO website (<u>https://conferences.iaea.org/event/285</u>) not later than **1 March 2022**. Authors will be notified of the acceptance of their proposed presentations by **1 April 2022** and provided with peer-review feedback. The authors will then be requested to submit revised extended abstracts by **1 June 2022**.

The extended abstract should be submitted together with the Participation Form (Form A) and the attached Form for Submission of a Paper (Form B) to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or their organization for onward transmission to the IAEA not later than **1 March 2022**.

# Key Deadlines and Dates

ACTION	DATE
Extended abstract submission deadline / Start of peer review;	1 March 2022
Submission of the Participation Form (Form A) Submission of the Form for Submission of a Paper (Form B);	
Submission of the Grant Application Form (Form C), if applicable	
Notification of acceptance of extended abstract by the IAEA	1 April 2022
Review comments submitted to authors	1 May 2022
Revised extended abstract submission deadline	1 June 2022
Technical Meeting in Vienna (Austria)	6–10 June 2022

## **IAEA Contacts**

#### **Scientific Secretaries:**

#### Mr Vladimir Kriventsev

Division of Nuclear Power Department of Nuclear Energy International Atomic Energy Agency Vienna International Centre PO Box 100 1400 VIENNA AUSTRIA

Tel.: +43 1 2600 22808 Fax: +43 1 26007 Email: <u>V.Kriventsev@iaea.org</u>

#### Ms Sehila M. Gonzalez de Vicente

Division of Physical and Chemical Sciences Department of Nuclear Sciences and Applications International Atomic Energy Agency Vienna International Centre PO Box 100 1400 VIENNA AUSTRIA

Tel.: +43 1 2600-21753 Fax: +43 1 26007 Email: <u>S.M.Gonzalez-De-Vicente@iaea.org</u>

#### Administrative Secretary:

#### Ms Khurshida Abdurasulova

Division of Nuclear Power Department of Nuclear Energy International Atomic Energy Agency Vienna International Centre PO Box 100 1400 VIENNA AUSTRIA

Tel.: +43 1 2600 24236 Fax: +43 1 2600 29598 Email: <u>K.Abdurasulova@iaea.org</u>

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**

## Technical Meeting on Synergies Between Nuclear Fusion Technology Developments and Advanced Nuclear Fission Technologies

## IAEA Headquarters, Vienna, Austria

### 6–10 June 2022

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: <u>Official.Mail@iaea.org</u> or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretary <u>V.Kriventsev@iaea.org</u> and to the Administrative Secretary <u>K.Abdurasulova@iaea.org</u>.

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: 1 March 2022

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 submit a paper?	Yes No No		
Would you prefer to present your paper as a poster? Yes No			
Title:			

Participants are hereby informed that the personal data they submit will be processed in line with the <u>Agency's</u> <u>Personal Data and Privacy Policy</u> 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 <u>Data Processing</u> <u>Notice</u> concerning IAEA InTouch+ platform.



# Form for Submission of a Paper

## **Technical Meeting on Synergies Between Nuclear Fusion Technology Developments and Advanced Nuclear Fission Technologies**

## IAEA Headquarters, Vienna, Austria

### 6–10 June 2022

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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: 1 March 2022

Title of the paper:				
If applicable: Extended abstract ID in IAEA-INDICO:				
Family name(s) and first name(s) of all author(s): e.g. Smith, John	Scientific establishment(s) in which the work has been carried out	City/Country		
1.				
2.				
3.				
Family name and first name(s) of author presenting the paper: e.g. Smith, John       Mr/Ms:				
Mailing address:				
Tel. (Fax):				
Email:				

Date: Signature of main author:
that the material submitted to the IAEA does not contain any libellous or other unlawful statements and does not contain any materials that violate any personal or proprietary rights of any person or entity.
that any permissions and rights to publish required for third-party content, including but not limited to figures and tables, have been obtained, that all published material is correctly referenced; and
that the material submitted to the IAEA is original, except for such excerpts from copyrighted works as may be included with the permission of the copyright holders thereof, has been written by the stated authors, has not been published before, and is not under consideration for publication by another entity;
Furthermore, I herewith declare:
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the copyright; or
I hereby agree to assign to the International Atomic Energy Agency (IAEA):



# **Grant Application Form**

## Technical Meeting on Synergies Between Nuclear Fusion Technology Developments and Advanced Nuclear Fission Technologies

## IAEA Headquarters, Vienna, Austria

### 6–10 June 2022

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: <u>Official.Mail@iaea.org</u> or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretary <u>V.Kriventsev@iaea.org</u> and to the Administrative Secretary <u>K.Abdurasulova@iaea.org</u>.

## Deadline for receipt by IAEA through official channels: 1 March 2022

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 wor from	ked to
	1			

#### 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