



Atoms for Peace and Development

الوكالة الدولية 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

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The Secretariat of the International Atomic Energy Agency (IAEA) presents its compliments to the IAEA's Member States and has the honour to draw their attention to the **Technical Meeting on Plasma Physics and Technology Aspects of the Tritium Fuel Cycle for Fusion Energy** (hereinafter referred to as "event") to be held at the IAEA's Headquarters in Vienna, Austria, from **10 to 13 October 2022**.

The purpose of the event is to review and discuss — in an integrated manner — plasma physics and technology aspects of the tritium fuel cycle in magnetic fusion reactors, from ITER to demonstration fusion power plants.

The attached Information Sheet provides further details of the event.

The event will be held in English.

Member States are invited to designate one or more participants to represent the Government at this event. Member States are strongly encouraged to identify suitable women 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 at the time of designating the participant(s) using the attached Grant Application Form (Form C).

It should be noted that compensation is not payable by the IAEA for any damage to or loss of personal property. The IAEA also does not provide health insurance coverage for participants in IAEA events. Arrangements for private insurance coverage on an individual basis should therefore be made. The IAEA will, however, provide insurance coverage for accidents and illnesses that clearly result from any work performed for the IAEA.

Designations should be submitted to the IAEA through the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) not later than **30 June 2022** using the attached Participation Form (Form A). Completed and authorized Participation Forms should be sent either by email to: Official.Mail@iaea.org or by fax to: +43 1 26007 (no hard copies needed). Copies should be sent by email to the Scientific Secretary of the event, Mr Matteo Barbarino, Division of Physical and Chemical Sciences, Department of Nuclear Sciences and Applications (Email: M.Barbarino@iaea.org), and to the Administrative Secretary, Ms Marion Linter (Email: M.Linter@iaea.org). The Scientific Secretary of the event will liaise with the participants

directly concerning further arrangements, including travel details, as appropriate, once the official designations have been received.

The Secretariat of the International Atomic Energy Agency avails itself of this opportunity to renew to the IAEA's Member States the assurances of its highest consideration.



2022-01-07

Enclosures: Information Sheet
 Participation Form (Form A)
 Form for Submission of a Paper (Form B)
 Grant Application Form (Form C)



IAEA

International Atomic Energy Agency

Atoms for Peace and Development

Technical Meeting on Plasma Physics and Technology Aspects of the Tritium Fuel Cycle for Fusion Energy

**IAEA Headquarters
Vienna, Austria**

10–13 October 2022

Ref. No.: EVT2103606

Information Sheet

Introduction

It is expected that first generation fusion power plants will use a mixture of two heavy isotopes of hydrogen — deuterium and tritium (DT) — as fuel, which then fuse to produce helium and neutrons. Inside the reactor, additional tritium will be ‘bred’ or created from the reaction of the neutrons with a lithium blanket covering the inner side of the reactor vessel. However, several uncertainties remain regarding the physics and technology of the DT fuel cycle in ITER and demonstration fusion power plants.

Objectives

The event aims to review and discuss — in an integrated manner — plasma physics and technology aspects of the tritium fuel cycle in magnetic fusion reactors, from ITER to demonstration fusion power plants.

Target Audience

The event aims to bring together technical representatives from a wide range of fusion specialties including core plasma physics, plasma material interactions, edge plasma (scrape-off layer) physics, materials science, plasma component design, vacuum systems, tritium behaviour, and tritium processing.

Working Language(s)

The working language of the event will be English. All communication and papers must be sent to the IAEA in English. No simultaneous interpretation will be provided.

Structure and Topics

The programme will mainly consist of sessions dedicated to invited oral talks and poster presentations and discussions. A Programme Committee made up of a representative international membership will be responsible for selecting the invited oral and poster presentations and arranging the technical and discussion sessions, as well as for the overall scientific content of the event. The topical area of focus in this technical meeting series is the complex interface of plasma physics and the DT fuel cycle, a scope largely neglected by other major international meetings but having potentially large impacts on the operations and feasibility of fusion as an energy source. On the following page is a representation of topical scope that will be addressed, and subsequent meetings may pursue other topics identified in deliberations or more deeply into any one of those.

Tokamak Physics / Plasma Chamber Topic	Fuel Cycle Topic
<u>Plasma physics:</u> <ul style="list-style-type: none"> • Burn fraction • Fuel delivery requirements • Gas delivery in addition to DT (H, Ne, other) • Plasma resilience to impurity build-up • Plasma particle transport 	<u>Fuel cycle technology:</u> <ul style="list-style-type: none"> • Fuelling • Isotope separation • Loop configuration (direct recycle) • Vacuum pumping • Fuel cleanup (purification)
<u>Plasma burn control:</u> <ul style="list-style-type: none"> • Plasma fueling rate and isotopic mix control • Power dissipation • ELM control 	<u>Fuel/exhaust actuator:</u> <ul style="list-style-type: none"> • Fueling and impurities feed control • Isotope separation and/or direct recycle • Pellet and gas injection
<u>First wall:</u> <ul style="list-style-type: none"> • Be, W, Mo, steel • Low-Z first wall coatings • Liquid metals • Dust • Redeposited layers • Tritium retention 	<u>Fuel cycle technology:</u> <ul style="list-style-type: none"> • Fuel cleanup (impurity processing) • Be and activated product cleanup technology (off normal) • In-vessel Tritium recovery (conditioning and remote handling) • Tritium recovery from coolant • Inventory measurement
<u>Disruptions</u> <ul style="list-style-type: none"> • Fuel and impurity released due to disruptions • Optimization of disruption mitigation for fuel cycle compatibility 	<u>Disruption mitigation</u> <ul style="list-style-type: none"> • Disruption mitigation technology • Fuel cleanup (purification and impurity processing) • Isotope separation • Vacuum pumping

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 **30 June 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 the above deadline.

All persons wishing to present a contribution at the event are requested to send the **Participation Form (Form A)** together with **Form for Submission of a Paper (Form B)** through the established official channels 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.

Please note that the IAEA is in a transition phase to manage the entire registration process for all regular programme events electronically through the new InTouch+ (<https://intouchplus.iaea.org>) facility, which is the improved and expanded successor to the InTouch platform that has been used in recent years for the IAEA's technical cooperation events. Through InTouch+, prospective participants will be able to apply for events and submit all required documents online. National authorities will be able to use InTouch+ to review and approve these applications. Interested parties that would like to use this new facility should write to: InTouchPlus.Contact-Point@iaea.org.

Abstracts and Proceedings

Anyone presenting a contribution at the event is requested to submit an abstract of not more than 500 words through IAEA-INDICO by **30 June 2022**. Abstracts may contain figures and graphics. Instructions on how to upload the abstracts will be available on the IAEA-INDICO website.

Submissions must contain the author's name, email address, country, organization and topic. Authors are encouraged to flag their proposals as an oral or poster presentation. However, the Programme Committee will evaluate all submissions and decide on the final presentation format.

Authors will be notified by email by **29 July 2022** as to whether their abstracts have been accepted.

An electronic copy of the proceedings, consisting of abstracts, presentation slides and posters will be made available to all participants on the IAEA Fusion Portal.

Under the coordination of the Chair of the Programme Committee, a summary paper will be published in the IAEA journal *Nuclear Fusion*.

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 **30 June 2022**.

Grant awards will be announced by **29 July 2022**.

Event Venue and Accommodation

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/guide-to-the-vic>

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.

Key Deadlines and Dates

30 June 2022	Deadline for submission of abstracts through IAEA-INDICO for regular contributions
30 June 2022	Deadline for submission of Participation Form (Form A), Form for Submission of a Paper (Form B) and Grant Application Form (Form C) (if applicable) through the official channels
29 July 2022	Notification of acceptance of abstracts and of assigned awards
10 October 2022	Event begins
13 October 2022	Event ends

Programme Committee

The International Programme Advisory Committee is composed of the following members:

Mr Charles Kessel (Chair)	United States of America
Mr Larry Baylor	United States of America
Mr Min Ho Chang	Republic of Korea
Mr Changan Chen	China
Mr Christian Day	Germany
Mr Yasunori Iwai	Japan
Mr Alberto Loarte	ITER Organization
Mr Scott Willms	ITER Organization
Mr Long Zhang	China

IAEA Contacts

Scientific Secretary:

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Division of Physical and Chemical Sciences
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Vienna International Centre
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1400 VIENNA
AUSTRIA

Tel.: +43 1 2600 26386

Fax: +43 1 26007

Email: M.Barbarino@iaea.org

Administrative Secretary:

Ms Marion Linter

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 25119

Fax: +43 1 26007

Email: M.Linter@iaea.org

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

Meeting Web Pages

Participants are encouraged to visit these web pages regularly to check for new or updated information regarding the meeting:

IAEA-INDICO:

<https://conferences.iaea.org/event/287/>

Participation Form

Technical Meeting on Plasma Physics and Technology Aspects of the Tritium Fuel Cycle for Fusion Energy

IAEA Headquarters, Vienna, Austria

10–13 October 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: 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 M.Barbarino@iaea.org and to the Administrative Secretary M.Linter@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: 30 June 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 <input type="checkbox"/> No <input type="checkbox"/> Would you prefer to present your paper as a poster? Yes <input type="checkbox"/> No <input type="checkbox"/> 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.

Form for Submission of a Paper

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Deadline for receipt by IAEA through official channels: 30 June 2022

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

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Please note: If granting the licence mentioned above, please supply any copyright acknowledgement text required.

Furthermore, I herewith declare:

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- 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 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.

Date:

Signature of main author:

Grant Application Form

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IAEA Headquarters, Vienna, Austria

10–13 October 2022

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Deadline for receipt by IAEA through official channels: 30 June 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 (yy/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 worked	
			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 _____