



IAEA

International Atomic Energy Agency

Atoms for Peace and Development

Technical Meeting on Tritium Breeding Blankets and Associated Neutronics

IAEA Headquarters, Vienna, Austria

17 - 20 December 2024

Ref. No.: EVT2304553

Information Sheet

Introduction

For their economical viability, fusion power plants based on a Deuterium-Tritium fuel cycle will have to breed their own tritium in-situ. Yet, tritium breeding blankets are one of the most important and novel technical components in any of the planned next step devices to follow ITER. Therefore, nations around the world have embarked in dedicated R&D programmes, whose role it is to address and resolve the feasibility and attractiveness issues of the tritium breeding blanket concepts being considered. Feasibility issues are those issues that could reduce or close the available design window or lead to unacceptable reliability, availability, or lifetime; and/or unacceptable safety impact. Attractiveness issues could instead reduce the system performance and or lifetime, increase system cost, and/or have less desirable safety or environmental implications. The strategy followed by some nations for the development of their breeding blanket technology includes the reliance on the Test Blanket Module (TBM) programme on ITER for providing initial important technology information related to a wide range of issues such as breeding blanket design, fabrication, vacuum vessel integration, commissioning, operation, reliability and availability, and many more.

Against this backdrop, the IAEA is launching a series of Technical Meetings on the topic of tritium breeding blankets and associated neutronics.

Objectives

The objectives of the first Technical Meeting in the series are threefold:

- Provide a forum for exchanging and discussing technical issues associated to the development and nuclear qualification of tritium breeding blanket technologies;
- Contribute to the establishment of specific guidelines for the qualification of tritium breeding blankets as part of fusion nuclear installations;
- Contribute to harvesting the return on experience from the ITER TBM Program to inform and support the development of breeding blankets for next step fusion facilities.

Target Audience

The event aims at bringing together researchers and technical experts in the field of fusion breeding blanket technology, including design, manufacturing and testing, structural and functional materials development and qualification, codes & standards and neutronics.

Working Language

English.

Topics

The programme will mainly consist of sessions with invited as well as regular oral talks, poster presentations and discussions. A Programme Committee made up of a representative international membership will be responsible for selecting the invited and regular oral presentations as well as the poster contributions. It will also be responsible for arranging the technical and discussion sessions, as well as for the overall scientific content of the event. The scope of the Technical Meeting covers the following topics:

Topic#1 Breeding blanket design and performance

- a. Breeding blanket system
 - i. Neutronics performance
 - ii. Thermohydraulic performance and associated challenges
 - iii. Thermomechanical performance and associated challenges
 - iv. Operation, instrumentation and reliability
 - v. Integration within the vacuum vessel
 - vi. Maintenance
- b. Tritium extraction and removal
 - i. Extraction technology
 - ii. Tritium inventory
 - iii. Permeation issues
 - iv. Tritium fuel cycle (including modelling and technology maturation)
- c. Safety related aspects
 - i. Accident scenarios
 - ii. Rad waste management
 - iii. Radiation protection
- d. Functional and structural materials

- e. Li-6 enrichment (including associated economics and regulatory issues)

Topic#2 Manufacturing, assembly, and licensing

- f. Joining technologies
- g. Codes & standards and design rules
- h. Regulatory frameworks
- i. Economics and mass production of materials (functional and structural) and components

Topic#3 Testing and nuclear qualification

- j. Requirements & related facilities
- k. Test results and impact on technology maturation

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.

In order to be designated by an IAEA Member State or invited organization, participants are requested to submit their application via the InTouch+ platform (<https://intouchplus.iaea.org>) to the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or organization for onward transmission to the IAEA by **18 October 2024**, following the registration procedure in InTouch+:

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

- Persons with an existing NUCLEUS account can sign in to the platform 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 ‘Complete Profile’ and upload the relevant supporting documents;
- Search for the relevant event 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 InTouchPlus.Contact-Point@iaea.org);
- If applicable, indicate whether financial support is requested and complete the relevant information (this is not applicable to participants from invited organizations);
- Based on the data input, the InTouch+ platform will automatically generate the Participation Form(Form A) and/or the Grant Application Form (Form C);
- Submit their application.

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

NOTE: The application for financial support should be made, together with the submission of the application, by **18 October 2024**.

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.

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 [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. The IAEA may also use the contact details of Applicants to inform them of the IAEA's scientific and technical publications, or the latest employment opportunities and current open vacancies at the IAEA. These secondary purposes are consistent with the IAEA's mandate. Further information can be found in the [Data Processing Notice](#) concerning IAEA InTouch+ platform.

Abstracts and Proceedings

Any participant intending to present a contribution at the event is requested to submit an abstract of not more than 500 words through IAEA-INDICO by **18 October 2024**. 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 **22 November 2024** 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.

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, together with the submission of the application, by **18 October 2024**.

Venue

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:

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.

Key Deadlines and Dates

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| 18 October 2024 | Deadline for submission of abstracts through IAEA-INDICO for regular contributions |
| 18 October 2024 | 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 |
| 22 November 2024 | Notification of acceptance of abstracts and of assigned awards |
| 17 December 2024 | Event begins |
| 20 December 2024 | Event ends |

Programme Committee

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|-----------------------------|------------------------|
| Mr Richard Kamendje (Chair) | EUROfusion, Germany |
| Mr Hiroyasu Tanigawa | QST, Japan |
| Mr Francisco Hernandez | KIT, Germany |
| Mr Mu-Young Ahn | KFE, Korea |
| Mr Luciano Giancarli | ITER, France |
| Mr Songlin Liu | ASIPP, China |
| Mr Giacomo Aiello | EUROfusion, Germany |
| Mr Long Zhang | SWIP, China |
| Mr Salvatore D'Amico | EUROfusion, Germany |
| Ms Francesca Fantini | F4E, Germany |
| Mr Mike Gorley | UKAEA, UK |
| Mr Richard Pearson | Kyoto Fusioneering, UK |
| Mr Paul Humrickhouse | ORNL, USA |
| Alessandro Spagnuolo | ENI, Italy |

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