



# **17th Technical Meeting on Energetic Particles and Theory of Plasma Instabilities in Magnetic Confinement Fusion**

**Virtual Event**

**6–9 December 2021**

**Ref. No.: EVT1904279**

## **Information Sheet**

### **Introduction**

The International Atomic Energy Agency (IAEA) fosters international collaboration and coordination to help close the existing gaps in physics, technology and safety, and move forward in developing the peaceful use of fusion energy. IAEA's activities in this field cover, among others, plasma physics and fusion energy research, technologies and materials, both for magnetic and inertial confinement fusion.

The main objective of fusion technology development is to deliver a safe, economical and essentially unlimited energy source. While considerable progress has been made during the last few years, there is still a great deal of research and development needed.

In this regard, energetic particle physics plays a crucial role in nuclear fusion research and, in particular, with the operation of ITER on the horizon, worldwide attention is turning to the physics of burning fusion plasmas.

Understanding confinement and transport properties of energetic particles in magnetically confined plasmas, and how the presence of fast ions impacts the global plasma transport is key to achieve high fusion power and to avoid damage of plasma facing components in ITER and next step fusion devices. Energetic particles play in fact a critical role for the good performance of fusion reactors, but they also represent a source of free energy to drive instabilities. Likewise, advances in understanding of multiscale physics and instabilities in burning plasmas and enhanced modelling capabilities of such complex physical processes are of high importance to fusion's success as an energy source.

Because of the importance of these topics, the IAEA organizes meetings on energetic particles (since 1989) and plasma instabilities (since 2002) in order to foster the exchange of scientific and technical results on the behaviour of energetic particles in future fusion reactor plasmas. The role of these forums has become increasingly important for the international community since burning plasma projects such as ITER are in preparation.

## **Objectives**

The event aims to provide a forum to discuss the status of experimental and theoretical work on suprathreshold electrons and ions, as well as to discuss theoretical and computational physics issues relevant to burning plasmas in magnetic confinement fusion research.

## **Target Audience**

The event aims to bring together junior and senior scientific fusion project leaders, plasma physicists, including theoreticians and experimentalists, and experts in the field of energetic particles and plasma instabilities in magnetic confinement fusion.

## **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 consist of sessions dedicated to oral talks. A Programme Committee made up of a representative international membership will be responsible for selecting the oral talks, as well as for the overall scientific content of the event.

The sessions will cover the following topics:

- **Alpha Particles Physics**
- **Transport of Energetic Particles**
- **Effects of Energetic Particles in Magnetic Confinement Fusion Devices**

- **Collective Phenomena (Alfvén eigenmodes, energetic particle modes and others)**
- **Runaway Electrons and Disruptions**
- **Diagnostics for Energetic Particles**
- **Control of Energetic Particle Confinement**
- **Multiscale Physics and Instabilities in Burning Plasmas**

## **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 **13 September 2021**. 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.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and technical matters.

## **Papers and Presentations**

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 abstract of their work. The abstract will be reviewed as part of the selection process for oral presentations. The abstract should be submitted through IAEA-INDICO by **6 September 2021**. Abstracts may contain figures and graphics. Instructions on how to upload the abstracts will be available on the IAEA-INDICO website.

Authors will be notified by email by **6 October 2021** as to whether their abstracts have been accepted.

In addition, participants have to submit the abstract 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 **13 September 2021**.

## Key Deadlines and Dates

|                          |  |
|--------------------------|--|
| <b>6 September 2021</b>  | Deadline for submission of abstracts through IAEA-INDICO   |
| <b>13 September 2021</b> | Deadline for submission of Participation Form (Form A) and Form for Submission of a Paper (Form B) through the official channels |
| <b>6 October 2021</b>    | Notification of acceptance of abstracts  |
| <b>6 December 2021</b>   | Event begins   |
| <b>9 December 2021</b>   | Event ends   |

## Programme Committee

The Programme Committee is composed of the following members:

|                              |                   |
|------------------------------|-------------------|
| Mr William Heidbrink (Chair) | United States     |
| Mr Boris Breizman            | United States     |
| Mr Huishan Cai               | China             |
| Mr Wei Chen                  | China             |
| Mr Ambrogio Fasoli           | Switzerland       |
| Mr Eric Fredrickson          | United States     |
| Ms Tunde Fulop               | Sweden            |
| Mr Taik Soo Hahm             | Republic of Korea |
| Mr Matthew Hole              | Australia         |
| Mr Yaroslav Kolesnichenko    | Ukraine           |
| Ms Taina Kurki-Suonio        | Finland           |
| Mr Philipp Lauber            | Germany           |
| Mr Simon Pinches             | ITER Organization |
| Mr Sergei Sharapov           | United Kingdom    |
| Mr Kouji Shinohara           | Japan             |
| Mr Yasushi Todo              | Japan             |
| Mr Masatoshi Yagi            | Japan             |
| Mr Gregorio Vlad             | Italy             |

## **IAEA Contacts**

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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.

## **Event Web Page**

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

IAEA meeting web page:

<https://www.iaea.org/events/evt1904279>

IAEA-INDICO:

<https://conferences.iaea.org/event/243/>