



**IAEA**

**International Atomic Energy Agency**

*Atoms for Peace and Development*

# **29th IAEA Fusion Energy Conference (FEC 2023)**

**London, United Kingdom**

**16–21 October 2023**

Organized by the  
**International Atomic Energy Agency (IAEA)**

Hosted by the  
**Government of United Kingdom**

through the  
**United Kingdom Atomic Energy Authority (UKAEA)**

## **Announcement and Call for Synopses**

## A. Introduction

The International Atomic Energy Agency (IAEA) fosters the exchange of scientific and technical results in nuclear fusion research and development through its series of Fusion Energy Conferences. The 29th IAEA Fusion Energy Conference (FEC 2023) aims to provide a forum for the discussion of key physics and technology issues as well as innovative concepts of direct relevance to the use of nuclear fusion as a future source of energy.

With a number of next-step fusion devices currently being implemented — such as ITER in Cadarache, France, the Wendelstein 7-X stellarator in Greifswald, Germany, and the JT60 SA tokamak in Naka, Japan — and in view of the concomitant need to demonstrate the technological feasibility of fusion power plants, as well as the economic viability of this method of energy production, the fusion community is now facing new challenges. The way these challenges are addressed will determine the direction of research and technology development in the present and coming decades.

The scope of FEC 2023 is, therefore, intended to reflect the priorities of this new era in fusion energy research, technology development and preparation to industrial deployment. The conference aims to serve as a platform for sharing the results of research and development efforts in both national and international fusion experiments that have been shaped by these new priorities, and to thereby help in pinpointing worldwide advances in fusion theory, experiments, technology, engineering, materials, advanced concepts, safety, socio-economics and preparation to industrial deployment. Furthermore, the conference will also set these results against the backdrop of the requirements for a net energy-producing fusion device and a fusion power plant in general, and will thus help in defining the way forward.

With the participation of international organizations such as the ITER International Fusion Energy Organization and the European Atomic Energy Community (Euratom), as well as the collaboration of more than 40 countries and a great number of research institutes and organisations, including those working on smaller devices, it is expected that this conference will, like previous conferences in the series, serve to identify the possibilities and means for continuous and effective international collaboration in this area.

The 29th Fusion Energy Conference is being organized by the IAEA through the United Kingdom Atomic Energy Authority (UKAEA). Previous conferences in this series were held in Salzburg (1961), Culham (1965), Novosibirsk (1968), Madison (1971), Tokyo (1974), Berchtesgaden (1976), Innsbruck (1978), Brussels (1980), Baltimore (1982), London (1984), Kyoto (1986), Nice (1988), Washington DC (1990), Würzburg (1992), Seville (1994), Montreal (1996), Yokohama (1998), Sorrento (2000), Lyon (2002), Vilamoura (2004), Chengdu (2006), Geneva (2008), Daejeon (2010), San Diego (2012), Saint Petersburg (2014), Kyoto (2016), Ahmedabad (2018) and virtual edition (2021).

## B. Topics

(For further information, see Annex A)

- **EX**        Magnetic Fusion Experiments including Validation
- **TH**        Magnetic Fusion Theory and Simulation
- **TECH**     Fusion Energy Technology
- **IFE**        Inertial Fusion Energy
- **IAC**        Innovative and Alternative Fusion Concepts

Contributions on these topics will be considered for presentation at the FEC 2023 if they are clearly relevant to the development of fusion energy (see the attached Annex B, *Scientific Guidelines for Authors*). A Programme Committee consisting of a representative international membership will be responsible for the selection of contributions, the arrangements of conference sessions and the overall scientific content of the conference. The Programme Committee will meet in May 2023 at the IAEA's Headquarters in Vienna, Austria, to finalize the technical programme for the conference.

Please be aware that because of the large interest within some countries in submitting contributions, official authorities in those countries may pre-screen the contributions to be submitted. Authors are advised to acquaint themselves with possible deadlines for this process at their earliest convenience.

## C. 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.

### Registration through the InTouch+ platform:

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

- Persons with an existing NUCLEUS account can [sign in here](#) 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 'Basic Profile' (if no financial support is requested) or under 'Complete Profile' (if financial support is requested) and upload the relevant supporting documents;
- Search for the relevant event (**EVT2102340**) 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 [Conference.Contact-Point@iaea.org](mailto:Conference.Contact-Point@iaea.org));
- If applicable, indicate whether a paper is being submitted and complete the relevant information;
- 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 Participation Form (Form A), Form for Submission of a Paper (Form B) and/or 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 form(s) will automatically be sent to the IAEA through the online platform.

**NOTE:** Should prospective participants wish to submit a paper or request financial support, the application needs to be submitted by the specified deadlines (see section N).

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](mailto:InTouchPlus.Contact-Point@iaea.org).

If it is not possible to submit the application through the InTouch+ platform, prospective participants are requested to contact the IAEA's Conference Services Section via email: [Conference.Contact-Point@iaea.org](mailto:Conference.Contact-Point@iaea.org).

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. Further information can be found in the [Data Processing Notice](#) concerning IAEA InTouch+ platform.

## D. Submission of Synopses

Anyone wishing to present a contribution during the conference must submit **a synopsis of not more than 1250 words including references** (see the attached Annex B, *Scientific Guidelines for Authors*) through IAEA-INDICO. Instructions on how to upload the synopses will be made available on IAEA-INDICO in pdf format, which will be accessible through the IAEA conference web page (see Section P). All synopses must be submitted through this system **between 10 February and 16 March 2023, midnight** (Central European Time). Synopses submitted out of the submission time will not be considered under any circumstances. No other form of submission will be accepted.

**IMPORTANT:** The synopses will be considered by the Programme Committee only if governmental approval (designation) has been received by **28 March 2023**.

**10 February 2023**      Opening of synopses submission through IAEA-INDICO

**16 March 2023**      Deadline for submitting synopses through IAEA-INDICO

NOTE: Contributions submitted to the *Nuclear Fusion* Special Issue on JET T&DT need to submit a synopsis through IAEA – INDICO system as any other submission.

## E. Contributions, Manuscripts and Journal Articles

### E.1. Acceptance of synopses as contributions

Authors will be notified by email by **15 June 2023** as to whether their synopses have been accepted and, if so, in which format they are to be presented (i.e., overview oral, regular oral, overview poster or regular poster). They will also be informed of the assigned presentation session.

### E.2. Submission of manuscripts

**A manuscript must be submitted for each contribution.** Any contribution for which no manuscript is received by the given deadline will be removed from the conference programme. The deadline for

submission of the manuscripts as PDF files through IAEA-INDICO is **20 September 2023 midnight** (Central European Time). The IAEA will not accept submissions after the deadline.

NOTE: Manuscripts coming from contributions already accepted to the Nuclear Fusion Special Issue on JET T&DT are not needed. The URL to the NF publication will be uploaded into the IAEA – INDICO system by authors instead.

Specifications and instructions for the layout of the full manuscript as well as for the preparation of posters will be posted on the IAEA web page for the conference (see Section P) in **June 2023**. The manuscript must be submitted through IAEA-INDICO and uploaded as a PDF file. IAEA-INDICO will be reopened for submission of manuscripts on **31 July 2023 midnight** (Central European Time).

### Page limits for manuscripts

Summaries:	20 pages
Overviews:	12 pages
Oral presentations:	8 pages
Overview posters	12 pages
Posters:	8 pages

<b>15 June 2023</b>	Authors notified about the acceptance of their synopses and the format of presentations (specifications and instructions for the layout and electronic format of the full manuscripts, as well as for the preparation of posters, will be posted on the IAEA web page for the conference)
<b>31 July 2023</b>	Opening of manuscript submission through IAEA-INDICO
<b>20 September 2023</b>	Deadline for submitting manuscripts through IAEA-INDICO

Access to manuscripts through IAEA-INDICO system will be provided one day prior the starting of the conference to contributors.

### **E.3. Dissemination and publication routes**

The IAEA will not be issuing proceedings of the 29th IAEA Fusion Energy Conference. Instead, synopses, presentation slides, posters and manuscripts compiled as “Conference Material” will be made available on the IAEA Fusion Portal (see Section P).

The primary publishing route is the IAEA journal *Nuclear Fusion*. Authors may, however, choose to leave the manuscript as the final record.

The online conference material will be updated in 2023 with links to the *Nuclear Fusion* journal articles, and digital object identifiers will be appended to the manuscripts as required.

#### **E.3.1. Submission to *Nuclear Fusion* journal**

##### **E.3.1.1. Overview and summary contributions**

Authors of contributions to be presented as ‘overview oral’, ‘overview poster’ and ‘summary’ contributions are kindly requested to submit their papers for publication in a dedicated special issue of the journal *Nuclear Fusion* to appear in 2024. Papers should be submitted via <http://mc04.manuscriptcentral.com/nf-iaea> as soon after the conference as possible and by **27 November 2023** at the latest.

**27 November 2023** Deadline for submitting ‘overview oral’, ‘overview poster’ and ‘summary’ papers via <http://mc04.manuscriptcentral.com/nf-iaea> for publication in *Nuclear Fusion*

##### **E.3.1.2. Other contribution categories**

Authors of contributions to be presented as ‘regular oral’ and ‘regular poster’ contributions are also encouraged to submit their papers to the journal *Nuclear Fusion*. The papers must contain original work and should omit, or only briefly mention in the introduction, material that has already been published. Papers should be appropriate, in terms of style and content, for a high-quality scientific journal and will be subject to the standard double-referee peer review procedure observed by the editors of *Nuclear Fusion*. All communications with the authors regarding details for publication and charges will be handled by the *Nuclear Fusion* editorial office (email: [nf@iaea.org](mailto:nf@iaea.org)).

Authors will be contacted by the editorial office in **June 2023** to ascertain their intentions to further submit the conference papers to *Nuclear Fusion*. Journal articles may be submitted via <http://mc04.manuscriptcentral.com/nf-iaea> at any time before **15 January 2024**.

Published articles will be indexed within the journal as IAEA Fusion Energy Conference papers and linked to the manuscript in the Conference Material.

**15 January 2024** Deadline for submitting ‘regular oral’ and ‘regular poster’ papers via <http://mc04.manuscriptcentral.com/nf-iaea> for publication in *Nuclear Fusion*

## F. Post-Deadline Synopses

A limited number of post-deadline synopses will be accepted. To be considered, a synopsis must meet all of the following criteria:

- It deals with subject matter appropriate to this conference;
- It presents new experimental or theoretical data, or technological developments, of sufficient importance to attract wide-ranging interest among the conference participants obtained after the deadline for regular submissions; and
- It is submitted together with a completed Form for Submission of Contributions (Form B; see Section C) and an officially endorsed Participation Form (Form A; see Section C).
- The synopsis should be a maximum of 1250 words (including references) and should be submitted through IAEA-INDICO in PDF format **between 15 June and 15 September 2023, midnight (Central European Time)**. The Programme Committee will meet **between 16 and 17 October 2023** to consider post-deadline submissions. Authors will be notified promptly about the acceptance or rejection of their synopses through announcements at the conference. Authors of post-deadline contributions should be prepared to provide either a regular oral presentation or a regular poster. Time will be made available for two post-deadline oral presentations. The manuscripts of post-deadline contributions will be included in the conference material and must follow the same guidelines as detailed in Section E.

<b>15 June 2023</b>	Opening of post-deadline synopses submission through IAEA-INDICO
<b>15 September 2023</b>	Deadline for submitting synopses for post-deadline acceptance through IAEA-INDICO

## G. Expenditures

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 conference. The IAEA has, however, limited funds at its disposal to help cover 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 conference.

If participants wish to apply for a grant, they should submit applications to the IAEA using the InTouch+ platform through their competent national authority (see Section H). Participants should ensure that applications for grants are:

1. Submitted by **28 March 2023**;
2. Accompanied by Grant Application Form (Form C); and
3. Accompanied by 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**.

## **H. Distribution of Documents**

A preliminary programme of the conference will be made available on the conference web page (see Section P).

The final programme (**in electronic form only**) will be available free of charge upon registration at the conference. An app is also intended to be made available that will allow participants to access the programme and other conference-related details through their smartphones.

## **I. Working Language**

The working language of the conference will be English. No simultaneous interpretation will be provided. All communications and contributions must be sent to the IAEA in English.

## **J. Conference Venue and Accommodation**

The conference will be held at the Queen Elizabeth II Centre in London, United Kingdom. Participants must make their own travel and accommodation arrangements. 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.

## **K. Visas**

Participants who require a visa to enter United Kingdom should submit the necessary application to the nearest diplomatic or consular representative of United Kingdom at least four weeks before they travel to United Kingdom.

## **L. Satellite Meetings**

Details on how to arrange room reservations will soon be made available on the web page for the conference (see Section P).

## **M. Exhibitions**

Space will be available for commercial vendors' displays/exhibits during the conference (further information will be made available in due course on the IAEA's conference web page).



## N. Key Dates and Deadlines

### FORMS A, B AND C

**28 March 2023** Deadline for submitting Form B and/or Form C (together with Form A); no deadline if only Form A is submitted (see Section C)

### SYNOPSIS AND MANUSCRIPTS

**10 February 2023** Opening of synopses submission through IAEA-INDICO

**16 March 2023** Deadline for submitting synopses through IAEA-INDICO

**15 June 2023** Authors notified about the acceptance of their contributions and in which categories (specifications and instructions for the layout of the full manuscripts, as well as for the preparation of posters, will be posted on the IAEA web site for the conference) and opening of post-deadline submission through IAEA-INDICO

**31 July 2023** Opening of manuscript submission through IAEA-INDICO

**15 September 2023** Deadline for submitting synopses for post-deadline acceptance through IAEA-INDICO (**PDF files only**)

**20 September 2023** Deadline for submitting manuscripts through IAEA-INDICO

### PUBLICATION

**27 November 2023** Deadline for submitting overview oral and overview poster papers as well as summary papers via <http://mc04.manuscriptcentral.com/nf-iaea> for publication in *Nuclear Fusion*

**15 January 2024** Deadline for submitting regular oral and regular poster papers via <http://mc04.manuscriptcentral.com/nf-iaea> for publication in *Nuclear Fusion*

## O. Conference Secretariat

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

### Scientific Secretaries:

**Mr Matteo Barbarino**  
**Mr Danas Ridikas**  
Physics Section  
Division of Physical and Chemical Sciences  
Department of Nuclear Sciences and Applications  
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**Mr Ryan Wagner**  
Nuclear Power Technology Development Section  
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### Administration and Organization:

**Mr Sanjai Padmanabhan**  
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Division of Conference and Document Services  
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### Host Government officials:

**Mr Ian T. Chapman**  
United Kingdom Atomic Energy Authority  
Culham Science Centre, Abingdon, OX14 3DB, UK

Email: [Ian.Chapman@ukaea.uk](mailto:Ian.Chapman@ukaea.uk)

## P. Conference Web Pages

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

IAEA conference web page:

<https://www.iaea.org/events/FEC2023>

Conference Material will be made available on the IAEA Fusion Portal:<https://nucleus.iaea.org/sites/fusionportal/Pages/fec-landing.aspx>

Annex I.Topics

Category	Description
<b>EX</b>	<b>Experimental</b> plasma physics including validation*
<b>TH</b>	<b>Theory</b> and <b>simulation</b> *
<b>TECH</b>	<b>Technology</b> (not plasma interaction): Materials, Magnets, Engineering, System Integration, Neutron Sources, Radiation Transport and Activation, Power Plant Design, Safety, Maintenance and Remote Handling, Socio-Economic and Environmental Aspects, Licensing, Construction
<b>IFE</b>	<b>Inertial</b> Fusion Energy: Materials, Power Plant Design, Targets, Drivers
<b>IAC</b>	<b>Innovative &amp; Alternative</b> Concepts: Linear Configuration, Non-magnetic Configurations, Hybrids, etc

\*EX/TH subcategories listed below:

The keywords are indicative only and not limiting

EX/TH Subcategories	Scope
<b>C</b> – Confinement	Confinement and transport, including scenario development & L-H
<b>S</b> – Stability	Stability, including disruptions, runaways, control, mitigation & consequences
<b>W</b> – Waves	Plasma waves and energetic particle interactions
<b>D</b> – Divertor	Divertor/SOL physics and general power handling
<b>E</b> – Edge Transient Control	Edge transients, ELMs, mitigation & benign/no ELM scenarios
<b>M</b> – Material Interactions	Materials-plasma interactions
<b>P</b> – Pedestal , Core-edge	Pedestal physics and core-edge integration
<b>H</b> – Heating & Current Drive	Heating and current drive physics, antenna-plasma interactions

Annex II.

## INTERNATIONAL ATOMIC ENERGY AGENCY

Guidelines for the Authors

- i. The synopsis (extended abstract) is the only material used by the PC for selection and should not exceed 1250 words including references
- ii. The evaluation criteria are Impact, Novelty and Quality.
- iii. A meaningful title that communicates the main achievements is helpful.
- iv. The synopsis should clearly emphasize how the work described meets the criteria. It is recommended that there is a clear focus on results obtained, conclusions and impact in the field.
- v. Results obtained should be described and clearly stated at the beginning to assist the evaluation. Note that the PC work is conducted under strict confidentiality agreement.
- vi. Methodology and motivational statements are important but should not dominate the content of the synopsis.
- vii. The use of 2-3 figures in the synopsis can be very helpful in clearly communicating principal results.
- viii. The synopsis for overview contributions should provide a coherent analysis of a specific subject area, clearly showing main cross references in the same FEC.
- ix. Plans to undertake future productive analysis are welcome but cannot substitute for evidence of completed work.
- x. Conference manuscripts are not peer reviewed publications and will be made available as Conference Material.