



Workshop on Digital Innovation for Fusion Energy Research

**Hosted by the
Government of United States of America**

through the

MIT Plasma Science and Fusion Center

Cambridge, United States of America

8–12 December 2025

Ref. No.: EVT2405027

Information Sheet

Introduction

Over the past decade, digital engineering has transformed the way complex systems are designed, analysed, and optimized, enabling more efficient and predictive approaches across various industries, including aerospace, automotive, and healthcare. In fusion energy research, the integration of simulation and data into technologies such as digital twins is emerging as a powerful tool to enhance the design, operation, and performance of fusion devices. By creating high-fidelity, real-time virtual replicas of physical systems, digital twins enable predictive maintenance, advanced control strategies, and accelerated innovation. These technologies are playing an increasingly vital role in fusion research and development, supporting experimental design, facility optimization, and operational planning. This workshop aims to bring together experts, researchers, and industry professionals to explore the latest advancements, share knowledge, and address key challenges in applying digital engineering to fusion energy. The insights and outcomes of this workshop will contribute to ongoing international efforts to accelerate fusion development through advanced computational methodologies.

Objectives

The purpose of the event is to bring together experts, researchers, and industry professionals to foster knowledge sharing and address emerging challenges in digital tools applied to fusion energy research.

Target Audience

The event aims to bring together a multi-stakeholder and inter-disciplinary audience of researchers, developers, practitioners, and entrepreneurs in digital engineering, fusion energy science research and development, to discuss applications, connect and build collaboration.

Working Language

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 Sessions

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 programme will feature the topical sessions below.

- **Simulation and Modelling Techniques**
 - Domain specific simulation for engineering
 - Coupling multi-physics simulations
 - High-fidelity simulations using high performance computing
- **Data Techniques**
 - Uncertainty quantification
 - Machine learning, surrogate modelling, and reduced models
 - Data collection and management for digital engineering
 - Design optimization and discovery
- **Simulation and Data Integration**
 - Workflow
 - Configuration management
 - Digital twin

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 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 **31 October 2025**, 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 **31 October 2025**.

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 Presentations

Participants who wish to give presentations are requested to submit an abstract of not more than 500 words through IAEA-INDICO by **30 September 2025**. 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 of the acceptance of their proposed presentations by **7 November 2025**.

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 **31 October 2025**.

Venue

The event will be held in Cambridge, United States of America. Participants must make their own travel and accommodation arrangements. For more information, please visit the meeting web page <https://conferences.iaea.org/event/412/>.

Visas

Participants who require a visa to enter the United States of America should submit the necessary application as soon as possible to the nearest diplomatic or consular representative of the United States of America.

Key Deadlines and Dates

30 September 2025	Deadline for submission of abstracts through IAEA-INDICO for contributed talks
31 October 2025	Deadline for submission of application for participation via the InTouch+ platform
7 November 2025	Notification of acceptance of abstracts and of assigned awards

Programme Committee

Michael Churchill (Chair)	United States of America
Emilio Baglietto	United States of America
Colin Baus	Japan / United Kingdom
Andre Carlos	Germany
Andrew Davis	United Kingdom
Ryanne Kennedy	United States of America
Jaemin Kwon	Republic of Korea
Cristina Rea	United States of America
Paul Wilson	United States of America
Jinxing Zheng	China

IAEA Contacts

Scientific Secretaries:

Mr Matteo Barbarino

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 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/Secretaries and correspondence on other matters related to the event to the Administrative Secretary.

Host Organization Contact Point

Ms Cristina Rea

MIT Plasma Science and Fusion Center
UNITED STATES OF AMERICA
Email: crea@psfc.mit.edu

Event Web Page

Please visit the following IAEA web page regularly for new information regarding this event:
<https://conferences.iaea.org/event/412/>