



**33<sup>rd</sup> SYMPOSIUM  
ON FUSION TECHNOLOGY**

SEPTEMBER 22-27, 2024      DUBLIN, IRELAND

**22-27 September 2024  
The Helix, Dublin City University  
Ireland**



**Programme Booklet**

<https://soft2024.eu/>

**DCU**

Ollscoil Chathair  
Bhaile Átha Cliath  
Dublin City University

## WELCOME ADDRESS

### Welcome to SOFT 2024!

We cordially invite you to participate in the 33rd Symposium on Fusion Technology (SOFT 2024), which will be held in Dublin City University, Ireland from 22 to 27 September 2024. The event is organised by Dublin City University and the National Centre for Plasma, Science and Technology.

The biennial symposium on fusion technology is the most important conference in this field in Europe, bringing together scientists, engineers, industry representatives and exhibitors from all over the world and focusing on the latest developments in fusion experiments and activities. SOFT 2024 will include invited, oral and poster presentations, as well as industry and exhibitions and it will be held at the Helix, Dublin City University. Dublin is the vibrant capital city of Ireland.

SOFT 2024 is hosted as a hybrid event. The Fourwaves platform will be used for the online part of the conference, some useful tips can be [found here](#).

#### **Please note the following**

**Photography and filming is taking place at SOFT 2024. The photographs and recordings made are likely to appear on our website.**

**In the interest of sustainability all SOFT 2024 documents will be shared with delegates in soft copy format.**

We look forward to seeing you at SOFT 2024,

**Miles Turner**, Chair of the International Organising Committee

**Jennifer Egan**, Chair of the Local Organising Committee

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## COMMITTEES

### INTERNATIONAL ORGANISING COMMITTEE

**Ali Benmoussa**, European Commission, Belgium

**Angel Ibarra**, CIEMAT, Spain

**Angelo Tuccillo**, ENEA, Italy

**Beatriz Branas**, CIEMAT, Spain

**Christian Day**, KIT, Germany

**Christian Linsmeier**, FZJ, German

**Elena Gaio**, CNR Consorzio RFX, Italy

**Martin Hron**, IPP, Czech Republic

**Miles Turner**, Chair, DCU, Ireland

**Philippe Moreau**, CEA, France

**Regina Knitter**, KIT, Germany

**Renaud Dejarnac**, IPP, Czech Republic

**Tonči Tadić**, RBI, Croatia

**Ursel Fantz**, IPP, Germany

**Walter Fietz**, KIT, Germany

### LOCAL ORGANISING COMMITTEE

**Adela Sotelo Tiebo**, Conference Secretary, DCU

**Barbara Bolger**, Conference Secretary, DCU

**Deborah O'Connell**, Co-chair LOC and Director of NCSPT, DCU

**Eliza Koslinski**, Conference Secretary, DCU

**Jennifer Egan**, Chair LOC, DCU

**Marie Leahy**, Comms and Marketing, DCU

**Miles Turner**, Chair IOC, DCU

**Sandra Clarke**, Fáilte Ireland

**Sarah Hayes**, Conference Administrator, DCU

**Sean Duke**, Comms and Marketing, DCU

## TOPICS

- A. General Reviews for DEMO, Power Plants and Plant Systems
- B. Experimental Devices and Facilities for Fusion Research
- C. Plasma Heating and Current Drive
- D. Plasma Engineering, Plasma Control, and CODAC
- E. Diagnostics
- F. Magnets, Cryogenics and Electrical Systems
- G. Plasma-Facing Components
- H. Vessel/in-vessel Engineering and Remote Handling
- I. Fuel Cycle and Breeding Blankets
- J. Materials Technology
- K. Safety and Environment, Socio-economic studies and Technology Transfer
- L. Non-magnetic fusion technologies

## INDUSTRIAL AND R&D EXHIBITION

A specific area on each floor in the Helix has been reserved for industries, research institutions and universities which wish to take the opportunity to exhibit their brand.

## INTERACTIVE PROGRAMME

The SOFT 2024 programme booklet, book of abstracts and interactive schedule can be accessed on SOFT Live <https://soft2024.eu/live/>



## SOFT Innovation Prize

### INTERACTIVE PROGRAMME

EURATOM Fusion Energy department launched in 2014 a European Prize for Innovation in Fusion with the name SOFT Innovation Prize. It is organized in association with the Symposium on Fusion Technology (SOFT) biennial conference. The objective of the prize is to reward outstanding researchers or industries who try to find new solutions, possibly with wider applications, to the huge challenges of fusion. Supporting future technologies as well as staying at the cutting edge of scientific frontiers is vital to keep Europe competitive, create new spin-offs and highly skilled jobs. Innovation is a core idea of the European Union research programme Horizon2020.

The 2024 SOFT Innovation Prize will be awarded on Wednesday, 25 September during at 11:30 in the O' Mahony Hall.

## HYBRID PLATFORM - FOURWAVES

Access online content for the SOFT 2024 through the following QR Code:



**CONFERENCE VENUE**

**THE HELIX, DUBLIN CITY UNIVERSITY**



**O'Mahony Hall**

**The Theatre**



**The Space**







# MAP OF DCU



- |   |  |  |  |  |
|---|--|--|--|--|
| <p><b>1</b> Fáilte Lóistín<br/>Accommodation Reception [W]</p> <p><b>2</b> Coláiste Albert<br/>Albert College [A]</p> <p><b>3</b> Foilgneamh Bea Orpen<br/>Bea Orpen Building [D]</p> <p><b>4</b> Ionad don Aos Óg Trítheach, Éireann<br/>Centre for Talented Youth (CTY) [P]</p> <p><b>5</b> Áras Chónaithe Pháirc an Choláiste<br/>College Park Residence</p> <p><b>6</b> Niallann<br/>Crèche</p> <p><b>7</b> An Scoll Gnó OCBÁC<br/>DCU Business School [Q]</p> <p><b>8</b> Foilgneamh Mac Cormac<br/>Mac Cormac Building [QA]</p> <p><b>9</b> Oifig Easát<br/>Estates Office [E]</p> <p><b>10</b> Lárlonad Spóirt agus Linn Snámha<br/>Gym, Pool and Sports Complex [U]</p> | <p><b>11</b> Foilgneamh Hamilton<br/>Hamilton Building [J]</p> <p><b>12</b> Árais Chónaithe Hampstead<br/>Hampstead Residences</p> <p><b>13</b> Ionad Dea-mhalrechtála<br/>Healthy Living Centre [H]</p> <p><b>14</b> Foilgneamh Henry Grattan (An tsráid)<br/>Henry Grattan Building (The Sower) [C]</p> <p><b>15</b> An tIonad Idirchreidimh<br/>Interfaith Centre</p> <p><b>16</b> Foilgneamh Invent<br/>Invent Building [B]</p> <p><b>17</b> Seirbhís Cáras Faisnéise<br/>Information Systems Services [CA]</p> <p><b>18</b> Leabharlann John agus Aileen O'Reilly<br/>John and Aileen O'Reilly Library [Y]</p> <p><b>19</b> Árais Chónaithe Larkfield<br/>Larkfield Residences</p> <p><b>20</b> Foilgneamh Lonsdale<br/>Lonsdale Building [X]</p> | <p><b>21</b> Foilgneamh Marconi<br/>Marconi Building [N]</p> <p><b>22</b> Foilgneamh McNulty<br/>McNulty Building [L]</p> <p><b>23</b> Carrchlús Ilistórach<br/>Multi-Storey Car Park</p> <p><b>24</b> Institiúid Eolaíochtaí na Beatha<br/>Life Sciences Institute [G]</p> <p><b>25</b> Foilgneamh Aonad Taighde Nano<br/>Nano Research Facility Building [GA]</p> <p><b>26</b> Altranas agus Eolaíochtaí Doonna<br/>Nursing and Human Sciences [H]</p> <p><b>27</b> Áras na nIarchéimíthe A<br/>Postgraduate Residences A</p> <p><b>28</b> Áras na nIarchéimíthe B<br/>Postgraduate Residences B</p> <p><b>29</b> Príomhbhalann<br/>Main Restaurant</p> <p><b>30</b> Foilgneamh Stokes<br/>Stokes Building [S]</p> | <p><b>31</b> Síneadh Stokes<br/>Stokes Extension [SA]</p> <p><b>32</b> Ionad "U" na Mac Léinn<br/>Student Centre "U" Building [KA]</p> <p><b>33</b> Amharclann Terence Larkin<br/>Terence Larkin Theatre [T]</p> <p><b>34</b> The Helix</p> <p><b>35</b> Áras Polaris<br/>The Polaris Building</p> <p>Páircéil Inrochtana<br/>Accessible Car Parking</p> <p>Racal Rothar<br/>Bicycle Racks</p> <p>Stad Bus<br/>Bus Stop</p> <p>Caifé<br/>Café</p> <p>Príomh Fáilte OCBÁC<br/>DCU Main Reception [QA]</p> | <p>Entrance<br/>Bealach Isteach</p> <p>Pointe Muirear Tapa EV<br/>EV Fast Charge Point</p> <p>Eolas<br/>Information</p> <p>Páircéil<br/>Parking</p> <p>Bealach Isteach na gColisthe<br/>Pedestrian Entrance</p> <p>Bialann<br/>Restaurant</p> <p>Scáthlán Cailte Tobac<br/>Smoking Shelter</p> <p>Pointe Muirear USB<br/>USB Charge Point</p> <p>Rochtain Feithicle<br/>Vehicle Access</p> <p>Fuarán Uisce<br/>Water Point</p> |
|---|--|--|--|--|

For an interactive DCU Glasnevin campus tour please visit

<https://www.dcu.ie/CampusExplorer>

## HOW TO GET HERE

### DUBLIN AIRPORT

The DCU Glasneivn campus is just a short distance from Dublin city centre, Dublin Airport and both the M50 and M1 motorways. The campus is bordered by Ballymun Road and Collins Avenue. Pedestrian, cycle and vehicular access is via the Collins Avenue and Ballymun Road entrances.

Dublin Airport is located 10 km north of Dublin city and approximately 5 km north of DCU. The airport is serviced by many transport links from Dublin which have routes that pass by the DCU campuses.

Public Transport – 30 mins (Bus number 16, 41, 33) - for the most up to date information on the available routes and times use the TFI Journey Planner and TFI Live App.

The Aircoach is another option – it is a coach service which runs from the city centre to the airport. For more information visit [Aircoach](#).

A taxi journey to DCU from Dublin airport should take 15-20 minutes and taxi pick up apps such as Free Now or Uber are available.

## REGISTRATION

### **The Regular and Student fees include:**

- Admission to: Symposium, poster sessions, industrial exhibition, satellite meetings
- Symposium materials
- Free Wi-Fi
- Coffee and tea breaks
- Opening ceremony and Welcome Reception on 23 September 2024
- Social Tour on 25 September 2024
- Social Dinner on 26 September 2024

### **The Virtual fee includes:**

- The online event will include an opening ceremony, SOFT Innovation Prize Award, Plenary and Invited talks with Q and A sessions, E-poster hall, Industry sponsors content, Book of Abstracts together with other conference content.

### **One-day (Industrial Day) registration**

#### ***Only available for Tuesday, 24 September 2024***

- Admission to: Symposium, Industrial day, poster sessions, industrial exhibition, satellite meetings of the day
  - Symposium materials
  - Free Wi-Fi
  - Coffee and tea breaks of the day
- \*\*The One-day registration fee does not include opening ceremony, excursion, dinner, publication and proceedings**

### **Accompanying person**

- Opening ceremony and Welcome Reception on 23 September 2024
- Social Tour on 25 September 2024
- Social Dinner on 26 September 2024

### **Registration and Information Desks**

The Registration and Information Desks are located in the Helix foyer.

#### **Opening Hours**

- Sunday, 22 September 16:30 – 19:00
- Monday, 23 September 08:00 – 19:00
- Tuesday, 20 September 08:00 – 20:00
- Wednesday, 21 September 08:00 – 15:00
- Thursday, 22 September 08:00 – 19:30
- Friday, 23 September 08:00 – 14:30



## NAME BADGE

All participants are kindly asked to wear their name badges for all symposium activities. Your name badge will act as your ticket into all social events.

The QR code on the front of your name badge will take you to the SOFT live page where you can access the programme booklet, programme overview, book of abstracts and link to the interactive schedule.

## INSTRUCTIONS FOR SPEAKERS

### ORAL SPEAKERS

#### General Instructions:

The length of the oral presentations is as follows:

Plenary Talk: 40 minutes (30 min presentation + 10 min Q&A),

Invited Talk: 30 min (25 min presentation + 5 min Q&A),

Contributed Talk: 20 min (15 min presentation + 5 min Q&A).

All talks will be streamed live on the Fourwaves platform .

**All speakers are required to check into the speaker ready room on the day of their presentation 30 minutes before morning/afternoon sessions. IT support will be available to assist all speakers.**

#### Presentation Instructions:

For SOFT 2024, presentations will be managed remotely. Oral presenters are required to upload presentations to the following upload link:

Web Portal: <https://www.dropbox.com/request/2F93oIROiePmoAxxOwHO>

All copies of presentations will be deleted once the event is over.

#### Guidelines for presentations:

All presentations will need to be made in the 16:9 aspect ratio.

Please make us aware of any video content included in your presentation, especially if there is audio on the video. You can upload a text file along with your

presentation with any specific instructions. You will be provided with a remote control to advance your presentation on the day of the event.

If you have any questions in relation to presentation instructions, please contact Jason: [jason@oneloudersound.ie](mailto:jason@oneloudersound.ie)

## **POSTER PRESENTERS**

### **General Instructions:**

Four poster sessions are scheduled during SOFT2024

**Poster session 1:** Monday, 23 September, 14:30–16:00: Topic E & G

**Poster session 2:** Tuesday, 24 September, 14:30–16:00: Topic A, D, H & K

**Poster session 3:** Wednesday 25 September, 12:00–13:30: Topic B, C, F & L

**Poster session 4:** Thursday, 26 September, 14:30–16:00: Topic I & J

**Virtual poster session:** Thursday, 26 September, 14:30–16:00 (online presenters only)

Please note that the presentation of the poster contribution, either on-site or online, is required for submission of the corresponding contributed paper to the SOFT 2024 Proceedings.

There is no official poster template for SOFT 2024.

Onsite poster sessions will take place on first and second floor foyers and blue room in the Helix.

### **Poster Set-up and Tear Down:**

The on-site poster presenters are required to set-up their posters on the assigned boards in the Conference Venue on the morning of their session.

Posters must be removed from the boards at the end of each session.

### **Virtual Presenters:**

Virtual poster presentations should be in a landscape orientation, and must be prepared as a PowerPoint, PDF and/or a 5-min MPEG-4 video (\*.mp4, max 1 GB) recorded in PowerPoint, with no more than 5 slides for each of the poster presentation formats.

All posters must display the contribution title, authors, and affiliations.

Posters and Pre-recorded video talks must be uploaded to the Fourwaves platform by Friday 13 September 2024. Information on the live app can be viewed [here](#)

Information on Live App can be viewed using the QR code below



**INDUSTRIAL DAY, The Gallery, Helix,  
Tuesday 24 September: 14:30 – 18:00**

13:30-14:30	Registration Helix, DCU
14:30-14:40	Welcome & Introduction, Miles Turner, Chair, SOFT 2024
14:40-15:20	Ambrogio Fasoli, EUROfusion Programme Manager
15:20-16:00	Mack Stanley, Head of the ITER Procurement Division
16:00-16:30	Coffee Break
16:30-17:10	Lorenzo Capisani, European Commission
17:10-18:30	Private meetings and consulting for companies present on-site

## SATELLITE MEETINGS

### Monday 23 September

#### **28th IEA Subtask1 Review Meeting on Solid Breeder Blanket**

Room: Nano Research Facility (NRF) seminar room, DCU campus (building 25 DCU campus map)

Time: 11:00 -13:00

Attendance is by invitation only.

#### **International Workshop on Fusion Neutronics**

under IEA Technology Collaboration Programme on Nuclear Technology of Fusion Reactors Implementing Agreement (NTFR IA)

Room: The Gallery room, third floor, Helix, DCU

Time: 14:15-17:45

This workshop is open to all SOFT participants.

Organiser: Rosaria Villari, ENEA, Email: [rosaria.villari@enea.it](mailto:rosaria.villari@enea.it)

### Tuesday 24 September

#### **FDS Workshop for SuperMC/TopMC Multi-functional Calculation Program for Nuclear Design and Safety Evaluation**

Room: The Gallery room, third floor, Helix, DCU

Time: 09:00 – 11:00

Number of participants: 30+

This workshop is open to all SOFT participants.

Organiser: Qi Yang, Email: [qi.yang@fds.org.cn](mailto:qi.yang@fds.org.cn)

#### **DIGILab Lunch Workshop:**

Room: The Gallery room, third floor, Helix, DCU

Time: 12:30 – 14:00

Number of participants: 50+

This workshop is open to all SOFT participants.

#### **IEA Fusion Materials group meeting:**

Room: Nano Research Facility (NRF) seminar room, DCU campus (building 25 DCU campus map)

Time: 13:00-15:00

This meeting is by invite only.

For further information please email [dmitry.terentyev@sckcen.be](mailto:dmitry.terentyev@sckcen.be)

### **Nuclear fusion: Talking about what's beyond the Science**

Science, Technology and Society Research Group Workshop:

Room: GG28, Life Sciences Institute (G), DCU (building 24 on DCU camps map)

Time: 14:30-16:00

This workshop is open to all SOFT participants.

### **Gauss Fusion GmbH Workshop**

Room: The Theatre, Helix

Time: 18:00 - 18:30 (Reception)

18:30 - 19:30 (Workshop)

This workshop is open to all SOFT participants.

For catering purposes please register your interest by email:

<mailto:giulia.bonvissuto@gauss-fusion.com>

## **Wednesday 25 September**

### **Fusion Coordination – CATF Workshop**

Room: The Gallery Room, Helix

Time: 09:00 – 17:30

Attendance is by invitation only.

### **IEA TCP ESEFP ExCo Committee**

Room: Nano Research Facility (NRF) seminar room, DCU campus (building 25 DCU campus map)

Time: 11:00 – 13:00

Attendance is by invitation only.

## **Thursday 26 September**

### **Fusion Coordination – CATF Workshop**

Room: The Gallery Room, Helix

Time: 09:00 – 17:30

Attendance is by invitation only.

### **IEA NTRF TCP ExCo meeting**

Room: VBG03, Postgraduate Residence B Building (building 28 DCU campus map)

Time: 14:00 - 16:00

Number of participants: 15

Attendance is by invitation only.

## FULL PAPER SUBMISSION

### Call for papers

The SOFT Special Issue will include contributions from any area in the scope of the conference.

Guest editors:

Miles Turner Dublin City University, Dublin, Ireland (miles.turner@dcu.ie)

Special issue information:

The 33rd Symposium on Fusion Technology (SOFT 2024) will be held in Dublin City University, Ireland from 22 to 27 September 2024. The event is organised by Dublin City University and the National Centre for Plasma Science and Technology.

Contributions are invited on any topic included in the SOFT meeting: Guidance on the scope of these topics is available at the conference website [here](#)

Manuscript submission information:

This is an invitation only special issue. For any inquiries about the appropriateness of contribution topics, please contact the guest editors via their emails.

The journal's submission platform (Editorial Manager®) is now available for receiving submissions to this Special Issue. Please refer to the Guide for Authors to prepare your manuscript and select the article type of "VSI: SOFT 2024" when submitting your manuscript online. Both the Guide for Authors and the submission portal could be found on the Journal Homepage here: <https://www.sciencedirect.com/journal/fusion-engineering-and-design>.

Submission Deadline: Nov 29, 2024

Submission Open Date: Sep 27, 2024

Keywords: Fusion technology

[Learn more about the benefits of publishing in a special issue](#)

## SOCIAL EVENTS

### **Welcome Reception:**

- Date Monday, 23 September 2024
- Time: 19:30 – 21:30
- Place: Croke Park Stadium. Further information can be viewed [HERE](#).
- Transport: Coach transfer available from the Helix to Croke Park. Return transfers to Drumcondra and North Dublin City.
- Admission: Please ensure to wear your name badge as this will act as your entry ticket.

### **Walking Tour Glasnevin Cemetery:**

- Date Wednesday, 25 September 2024
- Time: 15:00 – 17:30
- Place: Glasnevin Cemetery - Ireland's National Cemetery. Further information can be viewed [HERE](#).
- Transport: Coach transfer available from the SOFT venue to Glasnevin Cemetery. No return transfers.
- Admission: Please ensure to wear your name badge as this will act as your entry ticket.

### **Social Dinner:**

- Date Thursday, 26 September 2024
- Time: 20:00 – 23:00
- Place: The Guinness Storehouse. Further information can be viewed [HERE](#).
- Transport: Coach transfer available from the SOFT venue to Guinness Storehouse. Return transfers available to Drumcondra and North Dublin City.
- Admission: Please ensure to wear your name badge as this will act as your entry ticket.



## COFFEE BREAKS AND LUNCHES

Both morning and afternoon coffee breaks will take place on first and second floor Foyers in the Helix. Please check the Symposium schedule for details.

Lunches are not included in the registration fee.  
Campus lunch options can be viewed on the SOFT website [HERE](#).

Water fountains and bottled water will be available for all delegates during all days of SOFT 2024.

## TRANSPORT

### Public Transport:

TFI Leap Card can be used to pay for travel around Dublin on all TFI public transport services including Dublin Bus, Go-Ahead Ireland, Luas, DART and commuter rail within the Dublin area “Short-Hop zone”.

For more information on where to get your Leap card and its benefits, please read [here](#).

For the most up to date information on the available routes and times use the [TFI Journey Planner](#) and [TFI Live App](#).

### Taxi information:

For Taxi pick up please download apps such as [Free Now](#) or [Uber](#).

## GOOD TO KNOW

### **Weather**

The weather in September in Ireland can be very pleasant. The average temperature high is 15° C / 59° F. The average low is 9° C / 48° F. When it does rain, showers tend to be light and temporary.

### **Currency and Banking**

In the Republic of Ireland, the currency used is the euro (€) and in Northern Ireland the currency used is the pound sterling (£). Most banks and hotels, as well as ATMs accept major standard international credit and debit cards.

### **Official Language of the Symposium**

The official language of the Symposium is English. No translation will be provided.

### **Liability and insurance**

The organisers do not accept responsibility for individual medical, travel or personal insurance. All delegates are strongly advised to purchase their own personal health and travel insurance before traveling to the symposium.

### **Health Care**

We strongly recommend delegates purchase travel and medical insurance when traveling to Ireland.

The European Health Insurance Card (EHIC) enables access to necessary state-provided healthcare on the same basis as a country resident. The nearest General Hospital to DCU is Beaumont Hospital (a public hospital). Beaumont Hospital is located close to DCU at Beaumont Rd, Beaumont, Dublin 9.

### **Important Telephone Numbers**

In Ireland we have two emergency numbers – 999 and 112.

The main emergency services are the “blue light” services that respond to normal emergencies in Ireland namely An Garda Síochána, the Ambulance Service, the Fire Service and the Irish Coast Guard. These principal emergency services would be first responders in most emergency situations.



## **Electricity**

The standard electricity supply on the island of Ireland is 230 volts AC, the same as in the UK. Visitors from outside the UK may require a transformer and plug adaptor (to convert 2-pin plugs to the standard 3-pin plugs), which can be bought at airports or electrical suppliers.



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ON FUSION TECHNOLOGY**  
SEPTEMBER 22-27, 2024 DUBLIN, IRELAND

33<sup>rd</sup> Symposium on Fusion Technology, September 22–27, 2024, DCU, Ireland.

# SUNDAY

## 22 September 2024



# PROGRAMME

## **REGISTRATION**

### **THE HELIX, DCU, DUBLIN, IRELAND**

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16:30-19:00 Conference Registration  
Sponsor and Exhibitor Setup  
The Helix Foyer, Dublin City University

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33<sup>rd</sup> Symposium on Fusion Technology, September 22–27, 2024, DCU, Ireland.

# MONDAY

## 23 September 2024



# PROGRAMME

## REGISTRATION

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08:00-09:00 Conference Registration & Poster Preparation

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## OPENING CEREMONY AND PLENARY SESSION 1 (09:00 — 11:00)

### The Mahony Hall, Helix, DCU

09:00-09:40 **Opening Ceremony**

09:40-10:20 **Pietro Barabaschi** IP1.1  
The ITER Project: moving forward to an updated baseline

10:20-11:00 **Hiroshi Shirai** IP1.2  
Overview of Japanese Fusion Strategy

11:00-11:30 **Coffee Break**

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## ORAL SESSIONS (11:30 – 13:00; 16:30 – 18:00)

### The Mahony Hall, Helix, DCU – Oral Session 1A

11:30-12:00 Topic G **Annika EKEDAHL** IT1A.1  
Main achievements from operating an actively cooled ITER grade W divertor on WEST

12:00-12:20 Topic G **Jannik Tweer** O1A.1  
Repair of heat load damaged plasma-facing material by direct energy deposition

12:20-12:40 Topic G **Sophie CARPENTIER** O1A.2  
Impact of plasma heat load specifications on the proposed ITER tungsten first wall design

12:40-13:00 Topic G **Axel Lorenz** O1A.3  
Completing the actively cooled first wall for W7-X high heat flux plasma operation

13:00-14:30 **Lunch Break**

14:30-16:00 **POSTER SESSION 1**

16:00-16:30 **Coffee Break**

16:30-17:00 Topic I **Vincenzo Narcisi** IT1A.2  
Status of the EU DEMO Coolant Purification System activities

17:00-17:20 Topic I **Inesh Kenzhina** O1A.4  
Comparative analysis of high-temperature corrosion processes of beryllides of different compositions

17:20-17:40 Topic I **Bradut-Eugen Ghidersa** O1A.5  
Experimental activities in support of the EU-DEMO Helium Cooled Pebble Bed Blanket design and qualification

17:40-18:00 Topic I **Remi Delaporte-Mathurin** O1A.6

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Advancements in Tritium Breeding: towards achieving self-sufficiency in Fusion Power Plants through Liquid Immersion Blanket Concept

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### The Theatre, Helix, DCU – Oral Session 1B

11:30-12:00	Topic E	<b>Tamas Szepesi</b> Visible video diagnostics for the support of Wendelstein 7-X and JT-60SA commissioning and operation	IT1B.1
12:00-12:20	Topic E	<b>Björn Brenneis</b> Experiments on Specular Wavy Liquid Metal Surface of Selected Optical Distance Sensors from Several Meters	O1B.1
12:20-12:40	Topic E	<b>Quentin Potiron</b> Comparison of Solid-State Neutron Detectors for 14 MeV Neutron Measurement under High Temperature up to 500°C	O1B.2
12:40-13:00	Topic E	<b>Pilar Cano Megias</b> Novel technique for main ion temperature measurements at the last closed flux surface using thermal neutrals	O1B.3
13:00-14:30		Lunch Break	
14:30-16:00		POSTER SESSION 1	
16:00-16:30		Coffee Break	
16:30-17:00	Topic B	<b>Petr Vondracek</b> COMPASS Upgrade: from design to construction Status of the COMPASS Upgrade tokamak	IT1B.2
17:00-17:20	Topic B	<b>Daniele Aprile</b> Progress on RFX-mod2 Vessel Complex assembly	O1B.4
17:20-17:40	Topic B	<b>George Sips</b> The DIII-D National Fusion Facility, supporting ITER and the Reactor Path	O1B.5
17:40-18:00	Topic B	<b>Louis Butt</b> Design and validation of a fusion neutron source at the Birmingham MC40 cyclotron	O1B.6

### The Space, Helix, DCU – Oral Session 1C

11:30-12:00	Topic D	<b>Anna Vu Trang</b> Progress in the ITER Plasma Control System Design	IT1C.1
12:00-12:20	Topic D	<b>Bernhard Sieglin</b> H-Mode density limit disruption avoidance in ASDEX Upgrade, TCV and JET	O1C.1
12:20-12:40	Topic D	<b>Morten Lennholm</b> Burn relevant D-T mixture control at JET	O1C.2
12:40-13:00	Topic D	<b>Filip Janky</b> SOPHIA: a tokamak simulator	O1C.3
13:00-14:30		Lunch Break	
14:30-16:00		POSTER SESSION 1	

<b>16:00-16:30</b>		<b>Coffee Break</b>	
16:30-17:00	Topic C	<b>Dirk Wunderlich</b> CW beam extraction from the NBI test facility ELISE: Approaching the ITER target values	IT1C.2
17:00-17:20	Topic C	<b>Arthur Adriaens</b> An automatic matching system for the ICRF antenna at TOMAS	O1C.4
17:20-17:40	Topic C	<b>Stefan Illy</b> Design Concepts for Megawatt-Class Fusion Gyrotrons Operating at the Second Harmonic of the Cyclotron Frequency	O1C.5
17:40-18:00	Topic C	<b>Rosa Difonzo</b> Investigation and optimization of innovative TPMS-based cooling system for the resonant cavity of gyrotrons for fusion application I-D	O1C.6

### **WELCOME RECEPTION: CROKE PARK (19:30-21:30)**

18:00-19:00	Coach transfer from Helix, DCU to Croke Park
19:00-21:00	SOFT 2024 Opening Ceremony, Croke Park. Further information can be viewed <a href="#">here</a>
21.00-21.30	Coach departures

### **POSTER SESSION 1 (14:30 – 16:00)**

P1-1	FANWEI YU	Probabilistic Detection Capability Evaluation of Eddy Current Testing to Detect Cracks on the Divertor Monoblock Surface.
P1-2	Hee-Jae Ahn	Tungsten Coated Tiles for KSTAR PFC Upgrade
P1-3	Sören Möller	Temperature dependent sputtering yields of iron-chromium steels with various tungsten contents
P1-4	Marco Barbisan	Upgrade of the Diagnostic Neutral Beam Injector for the RFX- mod2 experiment
P1-5	Liqun HU	MANUFACTURE STUDY OF ITER RADIAL X-RAY CAMERA
P1-6	Martin Muscat	Structural integrity assessment of the DEMO Fusion Reactor Divertor following the RCC-MRx design code
P1-7	Jean Boscary	Divertor Conceptual Design of the European Volumetric Neutron Source
P1-8	Antara Menzel-Barbara	Engineering tool for the optimization of a tungsten-based divertor in Wendelstein 7-X with regards to leading edges
P1-9	Valentina D'Agostino	Conceptual design of the bolometric diagnostic system for DTT: mechanical layout



P1-10	Irena Ivanova-Stanik	Integrated modelling H-mode for COMPASS Upgrade
P1-11	Teddy Craciunescu	Time series derived indicators for fusion plasma disruption prediction
P1-12	Azarakhsh Jalalvand	Leveraging Artificial Intelligence for Enhanced Fusion Plasma Diagnosis
P1-13	Daniel Dorow-Gerspach	Influence of surface cracking on macro-crack formation and propagation in tungsten
P1-14	Juan Du	Preparation and performance study of full dense three-dimensional tungsten fiber-reinforced tungsten composites
P1-15	Ivan Wyss	Optimizing Bolometer System Geometry for Robust Plasma Radiation Reconstruction in Nuclear Fusion Reactors
P1-16	Gilles Colledani	THE WEST THOMSON SCATTERING DIAGNOSTIC
P1-17	Renaud Dejarnac	COMPASS-U Plasma-Facing Components: Towards a Full Tungsten First Wall Coverage
P1-18	Christoph von Sehren	Reducing the effect of magnetic fields on electronic devices by magnetic shielding
P1-19	Masayuki Tokitani	Advanced Multi-Step Brazing (AMSB) for fabrication of new type of W/stainless steel first wall component with ODS-Cu intermediate layer
P1-20	Emmanuele Peluso	Maximum Likelihood Bolometric Tomography for DTT Diagnostic Design
P1-21	Attila Buzás	Estimating plasma size by visible emission patterns in the Wendelstein 7-X stellarator
P1-22	Duccio Testa	Conceptual design and prototyping of inductive magnetic sensors using photo-lithography processes
P1-23	Rodrigo Mateus	The sensitivity of NRA for deuterium quantification in Li-based materials
P1-24	Ralph Laube	Feasibility study for the integration of plasma facing Mirnov coils in W7-X
P1-25	Stephen Biggs-Fox	Sensor Placement Optimisation using Gaussian Process Regression for Fusion Engineering Simulation Validation
P1-26	Alexander Lau	Tungsten fiber-reinforced tungsten (Wf/W) via chemical vapor infiltration (CVI)
P1-27	Federico Fiorenza	Validation of ITER magnetic diagnostic algorithms by using JT-60SA magnetic measurements
P1-28	Arnold Lumsdaine	Development and Testing of Advanced Manufacturing Prototype for Edge-transport Diagnostic in WEST
P1-29	Thomas Siegel	Dimensional metrology measurements of targets relevant to the geometry of the IFMIF-DONES lithium target
P1-31	Marie-Helene Aumeunier	Prediction and evaluation of measurement performances of imaging diagnostics for ITER wall protection
P1-32	Federico Scioscioli	Design and Development Status of the ITER Radial Gamma Ray Spectrometer



P1-33	Sebastien Vives	Preliminary optical design and performance assessment of the visible and infrared viewing system for DTT
P1-34	DENIS GUIBERT	Monitoring and control of a GEM detector on WEST
P1-35	Péter Balázs	Assessment of the spatial resolution of the MAST Upgrade beam emission spectroscopy system by simulations
P1-36	Hans Meister	Vibration testing of mechanical resilience of bolometer sensors and sensor holders under ITER-relevant conditions
P1-37	Gunnar Schmidtman	Low Pressure Plasma Spraying of Tungsten Coatings for Plasma Facing Components in Future Fusion Devices
P1-38	Maria Lorena Richiusa	Identification of Design Drivers through Technology Feasibility Studies of First Wall Protection Systems
P1-40	Alejandro González-Ganzábal	A methodology for TIE detection and tracking for JET's experimental cameras
P1-41	Rudolf Neu	W/Ta cold-spray coatings as an armour layer for first wall steel components
P1-42	Imre Katona	Engineering Considerations for Optical Diagnostics of European DEMO
P1-43	Suk-Kwon KIM	Performance Testing for Plasma Facing Components by Using Heat Load Test Facility in Korea
P1-44	Masayuki Karato	Effect of hydrogen on tungsten surface crack initiation under pulsed thermal loading
P1-45	Marius Wirtz	Qualification of W first wall materials under off-normal loads
P1-46	Cederik Meekes	Experiments with and without externally applied magnetic field to prototype plasma cleaning of first diagnostic mirror in the ITER Visible Spectroscopy Reference System
P1-47	Oleg Shyshkin	Precise simulation of the mode coupling effect on the density measurements by microwaves in the COMPASS Upgrade tokamak plasmas
P1-48	Mathilde DIEZ	Chromatic confocal microscopy as a tool to measure erosion of plasma facing components with reference marks in WEST
P1-49	Soha Baydoun	Flow-Induced fretting in DEMO divertor targets equipped with swirl tapes: Numerical investigation and first experimental approach
P1-50	James Lilburne	STEP INBOARD FIRST WALL CONCEPT DESIGN
P1-51	Mikhail Maslov	Radiation effect in optical fibres measured in fusion environment
P1-52	Enrico Emanuelli	Simulation of runaway electron beam terminations and wall loads in DTT
P1-53	Zhongwei Wang	Thermomechanical Analysis and Optimization of the ITER Upper Port Mounted Bolometer Camera
P1-54	Esther Rincon	Design of ITER Ex-Port Plug Collective Thomson Scattering Launcher Line to Minimize Loads on Window
P1-55	Jan Dankowski	Advancements in Plasma Diagnostics: The Role of High Resolution Neutron Spectrometer in the ITER Project

P1-56	Koray Iroc	Microstructural characterization of neutron-irradiated ITER specified tungsten grades
P1-57	Matteo Hakeem Kushoro	SiC detector response to fusion plasma neutrons simulated through the convolution of experimental results
P1-58	Valentin Gorse	AI-based techniques for real-time detection and characterization of thermal events: first results on WEST tokamak
P1-59	Gabriele De Sano	Investigation of selective laser melting within the R&D activities for the DTT first wall
P1-60	Mike Jackson	Recent results on ST40 divertor spectroscopy and implications for erosion and strike point
P1-61	Daniel Ahlin Heikkinen Wartacz	Restoration in drawn tungsten wires of tungsten fiber-reinforced tungsten composites
P1-62	Damiano Paoletti	Verification and optimization of the DTT first wall
P1-63	Enrico Perelli Cippo	Advances on the use of SDD for real-time neutron spectroscopy on steady-state fusion reactors
P1-64	Lorenzo Melchiorri	OpenFOAM solver development for pressure waves propagation in liquid metals
P1-65	Andrea Belpane	Advance in the JT-60SA VUV Divertor spectrometer design
P1-66	Arthur Miles	Bonding of Graphite to Refractory Metals - Fusion Applications
P1-67	Hiroki Natsume	Synthetic diagnosis of ITER divertor impurity monitor using measured BRDF
P1-68	Eiichi Yatsuka	Development of laser beam dump for Thomson scattering diagnostic to withstand harsh thermal loads in ITER
P1-69	Mikhail Khokhlov	Validation of FE analysis results with selected W7-X in-vessel temperature measurements
P1-70	Nicola Massanova	Engineering design optimization and integration in VOLTA platform: Case Study on DTT Divertor Cassette
P1-72	Stefano Colombi	Studies of neutron attenuators for gamma ray measurement DT fusion experiments
P1-73	Vojtech Smolik	Thermal and structural analysis of W-7X first wall tiles under direct NBI loads
P1-74	Simone Lorenzo Fugazza	Scoping study of a gamma-ray spectrometer for fusion power measurements at the SPARC tokamak
P1-75	Seungtae Oh	Tungsten PFC Reflectance modelling and Reflection Simulation
P1-76	Domenica Corona Rivera	Shadow Masks Predictions in SPARC Tokamak Plasma-Facing Components Using HEAT code and Machine Learning Methods
P1-78	Eunnam Bang	HHF test results of tungsten divertor mock-up with defect on diffusion bonding layer manufactured by HRP method
P1-79	Kenshiro Miura	Evaluation of deuterium retention behavior and irradiation defect introduction in potassium-doped tungsten
P1-80	Juhyeok Jang	Distribution of effective charge ( $Z_{eff}$ ) after tungsten divertor upgrade in KSTAR

P1-81	Dongcheol Seo	Observation of impurity spectral lines after tungsten divertor upgrade on the KSTAR
P1-82	Jong-ha Lee	Development of a Laser Sweeping System for Precise Positioning of Thomson Measurement in KSTAR
P1-83	Hajin Kim	Simulation and analysis of scattered light from laser beam dump inside the W divertor in KSTAR
P1-84	Heejin Shim	Manufacturing Assessment of the Simplified Full-Scale Prototype of Diagnostics Shield Module (DSM) for Application of ITER Upper Port 18
P1-85	Shumpei Ishida	3D tungsten fuzz behavior simulation combined with KMC and CGCNN
P1-86	Kun Wang	Procurement Status of ITER Blanket Shield Block in China
P1-87	Mauricio Gago	Deuterium retention of tungsten and tungsten alloys after fusion-relevant plasma exposure
P1-88	Marianne Richou	An actively cooled mock-up with massive tungsten assembled to eurofer tested up to 3 MW/m <sup>2</sup>
P1-89	Andrea Quartararo	Thermofluid-Dynamic Assessment of the Dual Cooling Scheme EU-DEMO Divertor Cassette
P1-90	Sacha Deranlot	Pressure drop assessment under nucleated boiling flow for Hypervapotron cooling concept
P1-91	Hyoung Chan KIM	Characterization of diffusion bonding processed W-V-RAFM steel PFC mockups incorporating cooling structure
P1-92	Ji-Young Jeong	Experimental Verification of Thickness Reduction Feasibility for Hydraulic Connectors in the ITER Blanket Shield Block
P1-93	Enrico Occhiuto	Maintenance plan of the ITER Radial Neutron Camera: verification and validation by virtual reality simulation
P1-94	Matěj Ivánek	Data fusion approach to evaluation of magnetic data from coils and Hall sensors using Kalman filtering
P1-95	Bence Longauer	Development of One-Step Ion Optics for Alkali Beam Emission Spectroscopy Diagnostics
P1-96	Alexander Huber	Development of a Laser-based Diagnostic for in situ Monitoring of Fuel Retention in ITER
P1-97	Weixi Chen	Lifetime estimation of poloidal horseshoe limiter for JA DEMO under cyclic thermal stress from pulse operation
P1-99	Lina Velarde	Analysis of fast-ion losses measured in MAST-U via infrared thermography and a Fast Ion Loss Detector
P1-100	Petra Jenuš	Microstructure and mechanical properties of W-xW2C composites after prolonged thermal treatment at temperatures above 1250 °C
P1-101	Songke Wang	Feasibility of A Gas-Cooled Divertor Cassette Body Design Concept for STEP
P1-102	Mykyta Varavin	Status of the innovative sub-THz interferometric system design development for COMPASS Upgrade

P1-103	Gorka Beaskoetxea	ITER Core Plasma Thomson Scattering diagnostic Collection Optics design
P1-105	Daigo Kanamori	Molecular dynamics simulation of the effect of different vacancy distributions on the temperature dependencies of the lattice thermal conductivity of tungsten
P1-106	Oliver Buxton	Correlating acceptance test results of the European series manufacturing of WEST ITER-like full tungsten PFUs
P1-107	Vladimir Weinzettl	First partial pressure measurements using Optical Penning Gauge in the COMPASS tokamak
P1-108	Marek Scholz	Neutron spectrometer based on a Gas Electron Multiplier (GEM) detector for fusion reactors.
P1-109	Nicola Fomesu	ITER-relevant experimental neutronic activities at JET during DTE3 and at the Frascati Neutron Generator
P1-110	Joris Paret	Preliminary machine learning-based calibration strategy for the ITER Tokamak Systems Monitor
P1-111	Joseba Baños	Design and Line-of-Sight optimization for VV-mounted and Divertor- mounted Bolometer Cameras in ITER
P1-112	Michele Lungaroni	Neutronics studies on the European DEMO Divertor target supports
P1-113	Oscar Putignano	Magnetic Field Sensitivity Study of an X-ray GEM diagnostic for RFX-mod2
P1-114	Aljoša Gajšek	Boiling Flow Visualisation Experiment Scaled to Divertor Cooling Conditions
P1-115	Ryota Imazawa	Cooling capability test of retroreflector of ITER poloidal polarimeter
P1-116	Alessio Quamori Tanzi	Triply Periodic Minimal Surfaces for high heat flux removal in the W-7X stellarator divertor
P1-117	Junsung Chang	Optimization of the Manufacturing and Inspection Processes of Inserts for ITER Blanket Shield Block
P1-118	Pavel Turjanica	Advanced magnetics diagnostics coils based on TPC technology for COMPASS-U and DEMO
P1-119	Laura Laguardia	Design and development of a neutral gas analyzer for the DTT divertor based on simultaneous mass and optical spectroscopy
P1-120	José Martínez-Fernández	Electromagnetic preliminary design of the real-time millimeter-wave radar system for the diagnostic of the IFMIF-DONES lithium target
P1-121	Antoine Bourgade	Viewing and Metrology measurements using the prototype In-Vessel Viewing System on a full-scale ITER Divertor IVT and damaged tungsten monoblocks
P1-122	Piotr Chmielewski	Power mitigation in the edge plasma of the JT-60SA tokamak with argon seeding
P1-123	Franz Stelzer	Efficient Boronisation through Automation: A Case Study of Simatic Software at ASDEX Upgrade



P1-124	Sebastian Friese	Integration of a laser-based calibration source into the protection shutter for the ITER T-monitor diagnostic
P1-125	Daniel Suarez	Development of an integrated simulation tool for open-surface liquid metal MHD flows in plasma facing components*
P1-126	Cécile Carcy	DIP, a high-power IR dispersion interferometer for electron density measurement
P1-127	Jeong-Ha YOU	Neutron diffractometry and tomography for stress measurement and defect inspection: applications for high-heat-flux components and round robin tests
P1-128	Youngseok Lee	High-Resolution Diamond-based Spectroscopy at the KSTAR Tokamak
P1-129	Peng Liu	Experimental studies for CuCrZr/SS316 joint of plasma facing component in flat-type divertor
P1-130	Silvia Palomba	Soft X-Ray Tomography in DTT Tokamak
P1-131	András Zsákai	Gas jet-based beam emittance analysis on the HUN-REN EK-CER microwave proton ion source
P1-132	Karla Ivanković Nizić	Performance of a scCVD particle detector operated at cryogenic temperatures in radiation harsh environments
P1-133	Luis Maqueda	PRELIMINARY DESIGN, DEVELOPMENT AND PRACTICAL IMPLEMENTATION OF THE RECONSTRUCTION ALGORITHMS FOR THE ITER TOKAMAK SYSTEMS MONITOR
P1-134	Riccardo De Luca	Thermo-structural assessment of the Limiter Inner First Wall design of the Divertor Tokamak Test facility
P1-135	Richard Jilek	HELICZA Facility: Current Status of HHF testing
P1-136	Maciej Szychalski	Nanomechanical property and microstructural changes of tungsten Langmuir probes retrieved from JET with metal walls
P1-137	Balazs Molnar	Edge plasma current profile reconstruction from the atomic beam probe diagnostic
P1-138	Marco Utili	Design and integration of the DTT Water Coolant Systems
P1-139	Boštjan Končar	Structural analysis of DTT divertor PFU under electromagnetic and thermal loading
P1-140	Davide Caprini	Hydraulic Analysis of the DTT Divertor Module
P1-141	Graham Naylor	Recent diagnostic developments at Tokamak Energy
P1-142	Teteny Dr. Baross	Optical design and alignment techniques for the Erosion Deposition Monitor in ITER Lower Port 8
P1-143	Vasiliki Anagnostopoulou	Preliminary calibration procedure for the DAY0 neutron and gamma-ray diagnostics of the Divertor Tokamak Test (DTT) facility
P1-144	Silvia Cesaroni	Characterization of a new <sup>4</sup> He scintillator detector prototype for the ITER Radial Neutron Camera
P1-145	Örs Asztalos	Feasibility of density fluctuation measurements on ITER with beam diagnostics
P1-146	Riccardo Agnello	Upgrades on spectroscopic diagnostics of ITER-relevant negative ion source, SPIDER

P1-147	Yasuhisa Oya	Evaluation of D retention for various damaged W-10%Re alloy by DPE D or D+He plasma exposure
P1-148	Minoru Sakama	Recent tetrahedral mesh structure modeling for pre/post-processing on the neutron transport calculation by PHITS to develop next-generation helical fusion reactor
P1-149	Ivona Vasileska	Advancing framework integration for efficient constrained optimisation in complex multi-physics simulation models
P1-150	Tomohiko Ushiki	Development of an in-vessel special calibration light source for ITER divertor infrared thermography
P1-151	Philip Bates	Prediction of inspection performance in ITER using an In-Vessel Viewing System simulator with a library of measured surface reflectivities
P1-152	Sungjin Kwon	Engineering Evaluation of the Upgrade KSTAR Divertor System
P1-153	Attila Bohm	Electromagnetic Loads Calculation of the In-Vessel Optical Box of the ITER Erosion Deposition Monitor Diagnostic System
P1-154	Miklós Palánkai	Mechanical development of the In-Vessel Optical box of the ITER Erosion Deposition Monitor
P1-155	Teppeï Otsuka	Local depth profiling of tritium in W by an electrochemical etching method
P1-156	Emilio Blanco	Current status of the design of the ITER Ex-Port Plug Collective Thomson Scattering diagnostic
P1-157	Ylenia Žiber	Comparative Analysis of SDDR Calculation Methods in large tokamak models
P1-158	Pierdomenico Lorusso	Development of tungsten-fiber reinforced copper composite pipes for applications in DEMO Divertor target
P1-159	Daniele Marocco	Neutron Yield Monitors for the Divertor Tokamak Test (DTT) facility: detector set, expected performance and integration
P1-160	Francesco Giorgetti	Diffusion Bonding Between Tungsten or Tungsten Alloys and Copper for Advanced Divertor Components
P1-162	Santiago Cabrera	Study of the OH-ORU positioning system of the Wide Angle Viewing System for ITER
P1-163	Selanna Roccella	Critical Heat Flux assessment on ITER-like divertor targets
P1-164	Kateryna Poleshchuk	Comparative analysis of the W/Cu joint properties before and after neutron irradiation
P1-165	Igor Lengar	Analyses of radiation streaming paths in large tokamak model
P1-166	Alberto Bittesnich	Scoping studies on ITER tungsten First Wall, Blanket Shielding Blocks and Borated Water in Vacuum Vessel
P1-167	Andrew Dvorak	DIII-D Fiberoptic Bolometer Design and Installation
P1-168	Huapeng Wu	A digital twin modeling method for real-time performance monitoring of remote handling robot system





**33<sup>rd</sup> SYMPOSIUM  
ON FUSION TECHNOLOGY**  
SEPTEMBER 22-27, 2024 DUBLIN, IRELAND

33<sup>rd</sup> Symposium on Fusion Technology, September 22–27, 2024, DCU, Ireland.

# TUESDAY

## 24 September 2024



# PROGRAMME

## REGISTRATION

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08:00-09:00 Conference Registration & Poster Preparation

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## PLENARY SESSION 2 (09:00 - 11:00)

### The Mahony Hall, Helix, DCU

09:00-09:40	<b>Phillipe Cara</b> Overview of the DONES Programme	IP2.1
09:40-10:20	<b>Jan Coenen</b> Navigating the Challenges of First Wall Materials in ITER and Future Fusion Reactors	IP2.2
10:20-11:00	<b>Samuele Dal Bello</b> Recent results and prospects of the ITER Neutral Beam Test Facility (NBTF)	IP2.3
11:00-11:30	<b>Coffee Break</b>	

## ORAL SESSIONS (11:30 – 13:00; 16:30 – 18:00)

### The Mahony Hall, Helix, DCU – Oral Session 2A

11:30-12:00	Topic I	<b>Mu-Young Ahn</b> Status of KO-EU joint development for HCCP TBM	IT2A.1
12:00-12:20	Topic I	<b>Keisuke Mukai</b> Synthesis and evaluations of tritium breeding performance of Li-Be hybrid ceramics	O2A.1
12:20-12:40	Topic I	<b>Robert Pearce</b> Design, Development and Manufacture of the ITER Torus and Cryostat Cryopumps	O2A.2
12:40-13:00	Topic I	<b>Fumito Okino</b> Enhanced deuterium extraction efficiency from LiPb droplets in a vacuum	O2A.3
13:00-14:30		<b>Lunch Break</b>	
14:30-16:00		<b>POSTER SESSION 2</b>	
16:00-16:30		<b>Coffee Break</b>	
16:30-17:00	Topic A	<b>Felix Warmer</b> Advances in Stellarator Physics and Engineering – more than just an alternative concept	IT2A.2
17:00-17:20	Topic A	<b>Francisco Javier Fuentes</b> Best Practices and Methodology on Tokamak Dimensional Risk Management: ITER to DEMO	O2A.4
17:20-17:40	Topic A	<b>Koji Takahashi</b> Achievement of First Plasma and Successful Integrated Commissioning in JT-60SA	O2A.5
17:40-18:00	Topic A	<b>Paul Staniec</b>	O2A.6

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Lessons Learnt from AGHS supporting JET for the DTE2/DTE3 campaigns: Operational Limitations, Bottlenecks, and Impact of Completed/Outstanding Upgrades

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### The Theatre, Helix, DCU – Oral Session 2B

11:30-12:00	Topic F	<b>Simonetta Turtu</b> The DTT Magnet System from Design to Procurement and Test	IT2B.1
12:00-12:20	Topic F	<b>Jinggang Qin</b> Design and manufacturing technology development of HTS CICC magnet for the next fusion reactor	O2B.1
12:20-12:40	Topic F	<b>Hyunjung Lee</b> Assessment of KSTAR Nb <sub>3</sub> Sn superconducting magnet property under long-term operation	O2B.2
12:40-13:00	Topic F	<b>Nikolay Bykovskiy</b> Design, construction and test of high-current thermal switches using Nb-Ti and MgB <sub>2</sub> wires	O2B.3
13:00-14:30		Lunch Break	
14:30-16:00		POSTER SESSION 2	
16:00-16:30		Coffee Break	
16:30-17:00	Topic G	<b>Klaus Schmid</b> T-retention in tungsten and EUROFER and its influence on tritium self-sufficiency	IT2B.2
17:00-17:20	Topic G	<b>Johann Riesch</b> High heat flux testing of plasma-facing components for the compact, high field tokamak SPARC	O2B.4
17:20-17:40	Topic G	<b>Robin Shuff</b> ITER NHF First Wall Full Scale Prototype manufacturing and testing	O2B.5
17:40-18:00	Topic G	<b>Garreth Aspinall</b> Putting the Sun in a Box: An Industry Perspective on the Design and Manufacture of Plasma Facing Components	O2B.6

### The Space, Helix, DCU – Oral Session 2C

11:30-12:00	Topic K	<b>Joelle Elbez-Uzan</b> Safety Approach and Demo Progress in Safety Demonstration and Future Fusion Power Plant	IT2C.1
12:00-12:20	Topic K	<b>Elodie Bernard</b> Overview of the TITANS (Tritium Impact and Transfer in Advanced Nuclear Reactors) project	O2C.1
12:20-12:40	Topic K	<b>Paul Humrickhouse</b> Impact of coatings on decay heat and waste associated with fusion components	O2C.2
12:40-13:00	Topic K	<b>Priti Kanth</b>	O2C.3



		Parameters affecting EU-DEMO radioactive waste generation and mitigation techniques	
13:00-14:30		Lunch Break	
14:30-16:00		POSTER SESSION 2	
16:00-16:30		Coffee Break	
16:30-17:00	Topic C	<b>Benjamin Ell</b> Advancements in Gyrotron Efficiency: From Single- to Multi-stage Depressed Collectors	IT2C.2
17:00-17:20	Topic C	<b>Cristina de la Morena</b> Solid-state radiofrequency amplifier technology for fusion applications	O2C.4
17:20-17:40	Topic C	<b>Munseok Choe</b> Cross-validation of RF/Optical Simulation Tools for Advanced Engineering Design of EC Equatorial Launcher in ITER	O2C.5
17:40-18:00	Topic C	<b>Shawn Tang</b> Results from the High-Power Helicon Current Drive System at DIII-D	O2C.6

## **POSTER SESSION 2 (TUESDAY 14:30 – 16:00)**

P2-1	Didier Chauvin	Maintenance engineering in the DEMO Conceptual Design Phase - Policy and Strategy for the development of a fusion power plant maintenance plan
P2-2	Gonçalo Teixeira	Breeding Blanket operation concepts in DEMO: from vertical extraction to horizontal accommodation in cask
P2-3	Troy Pederson	First Demonstration of Real-time Divertor Heat Flux Feedback Control on DIII-D
P2-4	Bernhard Ploeckl	Status of the Pellet Launching System for JT-60SA and its importance for EU-DEMO
P2-5	Changyang Li	Design and Development of candidate Remote Maintenance Equipment and their Sequence of Operations within the Ports in DEMO
P2-6	Azman Azka	Preliminary Assessment and Evaluation of Visual Inspection Sensors for DEMO Service Weld Seam
P2-7	Keno Jann Büscher	Structural Analysis and Optimization of Mechanical Multi-Pipe Connection for DEMO Upper Port
P2-8	Manuel Antonio Vázquez	Dynamic Thermomechanical Simulations of IFMIF-DONES Target's Back-Plate failure
P2-10	Bartłomiej Jabłoński	Deep Learning for Thermal Event Instance Segmentation on Plasma-Facing Components of Fusion Devices
P2-11	Emilio Acampora	Scenario feasibility and plasma controllability for a Volumetric Neutron Source (VNS)





P2-12	Willem Rutten	A Multidisciplinary Analysis and Optimization framework for stellarator conceptual design
P2-13	James Cook	The effect of passive structures on the equilibria vertical stability in integrated powerplant design.
P2-14	Eseosa Ekanem	Design of the Atmosphere Detritiation System for UKAEA's Tritium Research Facility
P2-15	Sebastian Ruck	Design Update of DEMO BoP for HCPB BB Concept with an Energy Storage System
P2-16	Mario Francisco Ruiz	Seismic Safety Strategy for IFMIF-DONES
P2-17	Larissa Breuning	Operational planning of magnetic confinement fusion power plants using a MIP unit-commitment model
P2-18	Myungkyu Kim	Development of a real-time event handling program for expanded use of the KSTAR Fast Interlock System
P2-19	Xiuqing Zhang	Research on Transmission Line Identification Method Based on Magnetic Field Distribution Characteristics
P2-20	Giulia Calvo	Preliminary design of a redundant robotic arm for pipe manipulation
P2-21	Dario Carloni	Roadmap for Activated Corrosion Products (ACPs) Assessment in Fusion Reactors: A Global Collaborative Approach
P2-22	Peter Spaeh	Remote maintenance concept and design implications for the EU-DEMO EC heating and current drive launchers
P2-23	Gennaro Di Mambro	Electromagnetic loads acting on the EU-DEMO divertor: sensitivity to alternative material options
P2-24	Sara Dubbioso	Simulation validation of an Extremum Seeking-based Vertical Stabilization system for TCV
P2-25	Tommaso Glingler	Hydrogen Explosion Risk for EU-DEMO reactor considering tungsten dust reaction with steam
P2-26	David Weldon	Fueling modeling and control for ITER first plasma operation
P2-27	Sa-Woong KIM	Development and application of hybrid TIG welding techniques for the ITER Blanket Shield Block
P2-28	Zhixin Yao	Surrogate model-based real-time dynamic simulation of DEMO MPD: Modeling and Implementation
P2-29	Sabine Schreck	Interface Identification for DEMO HCD-System - first steps following the new Interface Management approach
P2-30	Andrea Burlando	EU DEMO pulsating Balance of Plant Power Conversion System operated with no thermal energy storage.
P2-31	Domenico Frattolillo	Magnetic control strategies to reduce first wall heat loads in ITER
P2-32	Augusto Pereira	Enhanced prediction of high-frequency signals for ITER diagnostics

P2-33	Hervé ANCHER	Special architecture deployed for data acquisition and synchronization of the ITER Tokamak Port Plugs thermocouples, ECH windows, accelerometers and strain gauges
P2-34	GIUSEPPE DI GIRONIMO	Conceptual selection of the RH strategy for the DTT ICH antenna based on the AHP method
P2-35	Qiwei Xue	Real-Time Condition Monitoring of Fusion Remote Maintenance System Operators Using Remote Photoplethysmography
P2-36	Richard Kamendje	An innovative magnetic cage concept designed to contain and control a very compact plasma featuring high NWL
P2-37	Luigi Reccia	Validation of Vacuum Vessel Thermal Shield deformation via Finite Elements and Morphing Techniques based analysis
P2-38	Edoardo Pompa	Application of Virtual Fitting in the Manufacturing of the ITER European Vacuum Vessel Sectors
P2-39	Gabriele D'Amico	The Management and Cascading Of Geometrical Requirements from designer to manufacturer in the ITER life-cycle
P2-40	Francesco Marino	Requirements Engineering and Conceptual Design of RH Gripper for DTT ICH Antenna
P2-41	Jaroslav Stoklasa	Processing of hydrogenated tungsten pellet waste by the Molten Salt Oxidation method
P2-42	Matt Williamson	Design and Structural Assessment of Ex-vessel Fueling Pellet Injection System with Bellows and Leaf Springs for ITER
P2-43	Luigi Emanuel di Grazia	Burn control strategies using plasma elongation control in DEMO
P2-44	Geunhong Kim	Threaded Inserts for ITER Vacuum Vessel Ports
P2-45	Giil kwon	Recurrent multivariate time series forecasting deep learning model for KSTAR PF superconducting coil temperature prediction.
P2-46	Dongyi Li	Blanket Remote Maintenance Robot Motion Control Based on Nonlinear Model Predictive Control and Neural Network
P2-47	James Bromley	EU DEMO Waste Management Plan
P2-48	Dohee Lee	A design progress of an articulated robotic arm for a fusion experimental device
P2-49	William Brace	Optimal Design Drivers as A Rationale For A Bottom-Up Approach In DEMO Remote Maintenance Equipment Conceptualisation
P2-50	László Poszovecz	Design Space Exploration for Remote Maintenance Compatible Attachment

P2-51	Van Dung Truong	Design by Cataloguing - a Product-Driven Design Approach for the Conceptual Design of Fusion Remote Maintenance Systems
P2-52	Théo Boujet	Feasibility study for cryogenic pellets production with pure gaseous helium cooling for ITER disruption mitigation system
P2-54	Rodrigo Castro	Large-scale indexing system for ITER data handling
P2-55	Daniel Birlan	Conceptual design proposal for the EU-DEMO EC heating and current drive ex-vessel waveguide system with enhanced remote maintainability
P2-56	Oliver Funk	An automated pipeline from power plant concept design to neutronics model
P2-57	Arti Vasanthakumaran	Predictions of waste generation from the STEP prototype - developing the standardised database
P2-58	Janne Lyytinen	In-Vessel Component Remote Maintenance Path Planning Methods for Plant Architecture Assessments
P2-59	Petri Tikka	Simulated installation of a Breeding Blanket segment in a Two-Port Mover context
P2-60	Christian Oltra	Understanding public attitudes towards fusion energy in Europe: A cross-national survey study
P2-61	Raffaella Testoni	Tritium accident analysis in the Isotope Rebalancing and Protium Removal System of DEMO Fuel Cycle
P2-62	Stephane Gazzotti	Ventilated Immersive Suit for Interactive & Operative Nuclear operations (VISION) for eXtended Reality simulations applied to ITER Test Blanket Modules replacements
P2-63	Tamás Szabolics	Integrated commissioning and first operation experiences of the data acquisition control software for JT-60SA video diagnostic system
P2-64	Erwan Grelier	An Open Source Fusion Machine Agnostic Standard for the Exchange and Processing of Infrared Videos and Video Annotations
P2-65	Stefano Murgio	FUSION NEUTRON SOURCE OPTIMIZATION FOR HYBRID REACTORS
P2-66	Pasquale Zumbolo	Energy Optimization of the EFCC Power Supply in DTT Scenarios
P2-67	Antonio Iaiunese	Preliminary Fault Analysis of EFCC System in the Divertor Tokamak Test (DTT) Facility
P2-68	Samuel Knight	Experiences from STEP of the challenges for commercialising fusion
P2-69	Jamie Tow	Benefits from investing in fusion: not just a long-term bet
P2-70	Vincenzo Claps	Remote Maintenance Strategy of the Blanket of the Volumetric Neutron Source



P2-71	Alessandro Morandi	Activation Analysis of a Compact Tokamak Using Deuterium-Helium3 Fuel
P2-72	Antonio Di Giacomo	Prototype In-Bore Welding Tool for DEMO's in-vessel pipes
P2-73	Roberto Masocco	A distributed real-time diagnostic and control network for the TCv tokamak based on the Data Distribution Service
P2-74	ROCCO MOZZILLO	Strategy for the development of pipes service tools for DEMO In-Vessel Components
P2-75	SALVATORE FUSCO	Novel Design of the RFX-mod2 Manipulator End-effector
P2-76	Antonio Castaldo	Electromagnetic feasibility studies of plasma scenarios of DTT tokamak
P2-77	Takeyuki Tanaka	Development of First Wall Tool Base for ITER Blanket Remote Handling System
P2-78	Cyd Cowley	Uncertainty Characterisation of Plasma Control Subsystems
P2-79	Dániel Imre Réfy	ITER DMS Fast Shutter Laboratory Prototype Testing
P2-80	Vincent Graber	One-dimensional Simulations of Nonlinear Burn Control in ITER
P2-81	Thierry GILARDI	Experimental study of tritium outgassing from nuclear metallic waste encapsulated in cement matrix
P2-82	Zichuan Xing	Axisymmetric Control Emulation of ITER and Exception Handling Development on DIII-D
P2-83	Andrei Khodak	Three-Dimensional Multi-Physics Analysis System for Future Tokamak and Stellarator Power Plants
P2-84	Shigetoshi Nakamura	Design of strain measuring system in ultra-high vacuum environment for JT-60SA
P2-85	Qais Saifi	Stochastic State Estimation in Digital Twins: Transforming Probability Densities
P2-86	Simon McIntosh	Application of automatic differentiation to equilibrium reconstruction algorithms
P2-87	Mario Troise	Design of a reduced-scale test bench to prevent alignment failures of Laser Bore Joint
P2-88	Takao Hayashi	In-bore laser welding of all 36 lower divertor cassettes in JT-60SA
P2-89	Donato Sorgente	Advancements of testing activities for development of In-Bore Welding tool for large feeding pipes of In-Vessel components
P2-90	KAITO MIURA	Effect of Ta/W materials on negative ion production in Cs-free negative hydrogen ion source TPDsheet-U
P2-92	Takuya Iwamoto	Development of identification method for a feasible robot component geometry in ITER Blanket Remote Handling System



P2-93	Maximilian Reisner	The RAPTOR based control scheme at AUG and benchmarking its results with real time inputs against postprocessed data
P2-94	Michal Cihlár	The design and optimization of molten salt-gas heat exchangers for DEMO
P2-95	Tomoyuki ITO	The system design improvement of ITER Neutral Beam Duct Liner Remote handling Tool
P2-96	Rok Šabjan	Towards the industrialisation of fusion control system
P2-97	Raul Luís	Mechanical analysis of a waveguide extension for the reflectometry diagnostic in DEMO
P2-98	Marco Agostini	The potential role of fusion in Italian transition pathway scenarios
P2-99	Akhtar Zeb	Advancing remote handling capabilities in the nuclear industry: Integration of machine learning-based functional mock-up units in robotic technologies
P2-100	Ondrej Kudlacek	Actuator Management for the First ITER Plasma Operation
P2-101	Daniela Kropackova	Real-time density profile simulations on ASDEX Upgrade and the impact of the edge boundary condition
P2-102	Vladimir ARTISIUK	IAEA MECHANISMS TO SUPPORT FUSION TECHNOLOGY TRANSFER
P2-103	Rémy Nouailletas	WEST plasma control flight simulator
P2-104	Guim Pallas	In Pipe Inspection Tool for Remote Leak Localization and Visual Inspection of the ITER Thermal Shield Manifolds
P2-105	Jack Foster	Availability and its Impact on Commercial Fusion Power Plants
P2-106	Oliver Bardsley	Optimising STEP for transient magnetic control
P2-107	Nathan Cummings	Advancing Fusion Research Through FAIR Data Principles: A Case Study of MAST Data Service Development
P2-108	Michele Fadone	The upgraded Glow Discharge Cleaning system for RFX-mod2: design and first plasma ignition analyses
P2-109	Athoy Nilima	Optimization of STEP poloidal field coils with superconducting coil constraints in STEP-Bluemira power plant design framework
P2-110	Jack Acres	Investigating Dynamic Scenarios of a Spherical Tokamak Fusion Power Plant
P2-111	Trey Gebhart	Research and Design Contributions Toward Reliable Pellet Release and Dispersion Reduction for the ITER Disruption Mitigation System
P2-112	Ondrej Bogar	Advanced thermomechanical monitoring of critical components at COMPASS Upgrade tokamak
P2-113	Christopher Ashe	Benchmarking of spherical tokamak power plant design in PROCESS and SARAS



P2-114	Kyle Teixeira	Installation of the High Field Side Lower Hybrid Coupler at DIII-D
P2-115	Joshua Mitchell	Fusion Power Control and Optimisation with RAPTOR
P2-116	Alex Valentine	Investigation of OpenMC for nuclear analysis of high fidelity fusion relevant radiation transport models
P2-117	Samuel Jackson	Leveraging FAIR and Open Diagnostic Data from the MAST Tokamak for AI and ML Applications in Fusion Research
P2-118	Dustin Glibert	Sustaining Engineering and Modifications to the DIII-D Cryogenic System
P2-119	Johannes Illerhaus	Deep Learning-Based Real Time Electron Density Profile Reconstruction for Control at ASDEX Upgrade
P2-120	Oliver Marshall	A Variable Fidelity Approach with Verification and Validation for Developing the Electromagnetic Load Specification of Future Fusion Power Plants
P2-121	Jihyun Choi	Status of Prototyping of Korean Remote Participation Center for ITER Experiment
P2-122	Heesoo Kim	Radioactive waste analysis and disposal following KSTAR device diverter upgrade
P2-123	Eugenio Schuster	Model-based Scenario Control in EAST by Leveraging COTSIM's Prediction Capabilities
P2-124	Andrea Zoppoli	Concept Design of the Mockups System for the DTT Remote Handling Facility
P2-125	Bethany Colling	Informing a Proportionate Safety Demonstration and Regulatory Approach for Fusion Power Plants
P2-126	Dénes Zoltán Oravecz	Advancements in the IFMIF-DONES Target System for Fusion Materials Irradiation
P2-127	Sai Tej Paruchuri	Safe Reinforcement Learning-based Controller for Disruption Free Regulation of Plasma Density in Next-generation Tokamaks*
P2-128	Brian Leard	Towards Scenario Optimization and Control in NSTX-U by Machine-Learning-Enhanced Equilibrium and Transport Modeling Using COTSIM
P2-129	Otto Asunta	ST40 Plasma Control System: Status, results, and future
P2-130	Ryuhei Muto	Prediction of corrosion and mass transfer in liquid metal Sn loop at non-isothermal condition
P2-131	Alessandro Sofia	VR-Enhanced collision detection of flexible long-reach manipulators for remote handling tasks in fusion reactors
P2-132	Fabio Viganò	Thermo-Structural FE analysis design and optimization of Volumetric Neutron Source Tokamak components
P2-133	Mattia Scarpari	Exploration of Plasma Scenarios and Electromagnetic Disruption Characterization in the Context of TRUST Tokamak



P2-134	Natale Rispoli	Pre-conceptual design of ECE Imaging for real time NTM control
P2-135	Irene Pagani	Electromagnetic Analysis on ITER First Wall Samples Diagnostic with sub-modelling technique
P2-136	Abel Perez-Crespillo	Driving Technology Transfer in Fusion
P2-137	Vladimir Chakin	Creep and swelling of EUROFER97-3 steel after neutron irradiation at 325 and 550 °C up to 20 dpa
P2-138	Giuseppe Ramogida	Modelling and simulation of plasma disruptions in DTT
P2-139	Kazuki Nagahara	Enhancement to gas puffing control system towards precise control of electron density in LHD
P2-140	Kento Miyamae	Investigation of development of density profiles in start-up phase of DEMO and fueling/heating scenario using TASK/TR code
P2-141	Roman Afanasenko	An assessment of the shutdown dose rates inside the Vacuum Vessel of the DEMO tokamak at the beginning of operation
P2-142	Matej Klun	Building a Distributed Real-Time Control System Framework
P2-143	Jean-François Ciparisse	Scoping analysis of the parameters influencing D/T-air ignition risk in a vacuum chamber
P2-144	Harry Robinson	Towards a STEP Prototype Plant Maintenance Strategy
P2-145	Gianmaria De Tommasi	Rapid prototyping of control modules for the DTT Plasma Control System
P2-146	Gregory WAUTERS	Design and prototyping of ITER environment compatible high-density electrical & optical connectors for the IVVS
P2-147	Alessio Pesetti	MELCOR code numerical analysis of postulated out-vessel losses of lithium-lead in DEMO WCLL loop
P2-148	Hassan Al Khawaldeh	Simultaneous Regulation of the Dimensionless Gain and Density by Real-time Estimation of Confinement Times
P2-149	Andrea Reale	Overview of external Bore Tools Systems for divertor remote maintenance of DT
P2-150	Giuseppe Rattá	A data-driven disruption classifier based on signal anomalies
P2-151	Alberto Previti	Influence of plasma scenario, pipeline material properties, and corrosion rate on the assessment of the Activated Corrosion Products on the ITER Water Cooled Lithium Lead Test Blanket System
P2-152	Lucie Karásková Nenadálová	Expected Solid Waste from a Future DEMO Reactor
P2-153	Dariusz Makowski	Scalable and Reliable Platform for Image Acquisition and Processing
P2-154	Alfredo Portone	Linear Model Responses in Forced Flow Cooling
P2-155	Yican Wu	Studies on Fusion Nuclear Technology and Safety at FDS
P2-156	Jieqiong Jiang	Development Progress of Advanced Neutronics Software TopMC





P2-157	ZHENG XUE	Vertical instability active controlled power supply of HL-3 tokamak
P2-158	Xiaolong Liu	Managing Machine Safety Challenges for Over 1 MA H-mode Plasmas Operation on HL-3 Tokamak
P2-159	Timothe Auclair	Fast scoping of reactor parameter space using the new 0D system code D0FUS with a focus on compact and high field machines
P2-160	Andrea Clagnan	Design Progress of EU DEMO Divertor Cassette



**33<sup>rd</sup> SYMPOSIUM  
ON FUSION TECHNOLOGY**  
SEPTEMBER 22-27, 2024 DUBLIN, IRELAND

33<sup>rd</sup> Symposium on Fusion Technology, September 22–27, 2024, DCU, Ireland.

# WEDSDAY

## 25 September 2024



# PROGRAMME

## REGISTRATION

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08:00-09:00 Conference Registration & Poster Preparation

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## PLENARY SESSION 3 (09:00 - 11:00)

### **The Mahony Hall, Helix, DCU**

09:00-09:40	<b>Ambrogio Fasoli</b> EUROfusion's Vision for Advancing the European Fusion Energy Roadmap	<b>IP3.1</b>
09:40-10:20	<b>Jean Paul Allain</b> Building Bridges: A Vision for the US DOE Office of Fusion Energy Sciences	IP3.2
10:20-11:00	<b>Lu Kun, IPP China</b> Recent progresses of CN superconducting tokamak development	IP3.3
11:00-11:30	<b>Coffee Break</b>	
11:30-12:00	European Commission Innovation SOFT prize ceremony Deputy Director-General of DG RTD (EC), Joanna Drake	
12:00-13:30	Poster Session 3	
13:30-14:30	<b>Lunch Break</b>	

## GROUP EXCURSION: GLASNEVIN CEMETERY (14:30-17:30)

14:30-15:30	Coach transfer from Helix, DCU to Glasnevin Cemetery.
15:00-17:40	Glasnevin Cemetery Walking Tour (Approx. 30-40 minutes per tour). Further information can be viewed <a href="#">here</a>

## POSTER SESSION 3 (WEDNESDAY 12:00 – 13:30)

P3-1	Thomas Haertl	Vacuum pumping concept for quasi-continuous NBI operation at a steady state fusion machine
P3-2	Cristina Terlizzi	Scalable high-power Modular Multilevel Converter for DEMO Poloidal Field coils Power Supplies
P3-3	Federica Dematte	Assembly and Test Results of the High Current Nb3Sn React-and-Wind Conductor Prototype for the EUROfusion DEMO Toroidal Field Coils
P3-5	Shiyong He	Software Framework for Control System of Fusion Magnet Power Supply
P3-6	Sandra Greco	RF Modeling and Design of Feedthroughs for the ICH System of DTT
P3-7	Brendan Crowley	RF Ion Source Development for Neutral Beams at DIII-D
P3-8	Oleksii Girka	High RF voltage resonator test facility for new ASDEX Upgrade ICRF antenna vacuum feedthrough

P3-9	Mohammad Sazzad Hossain	Optimizing Inductively Coupled Ion Sources for Neutral Beam Injectors: Small-Scale and Full-Scale Models
P3-10	Fabio Veronese	Application of the Gaede Effect to the Neutralizer of DTT Neutral Beam Injector
P3-11	Davide Laghi	Comprehensive Assessment of Nuclear Heating in ITER Superconducting Magnets Using a Full-Tokamak 360° Model
P3-12	Florian Laggner	LUPIN - A Test Platform For Radio-Frequency Neutral Beam Positive Ion Sources
P3-13	Shunsuke Kenjo	Dose assessment for radioactive products distributed on liquid Li loops of fusion neutron sources
P3-14	Marta Damiano	Machine learning for the design of GENeUSIS: a neutron test bed facility for diagnostics and critical components of ITER
P3-15	Bin GUO	Design and experiment of the high water quality cooling plant for CRAFT NNBI Ion Source System
P3-16	Alessandro Frescura	Improved numerical modelling of gas-insulated components for the DTT Neutral Beam Injector power supply
P3-17	Ewa Laszynska	C/E analysis for activation of ITER materials irradiated over DTE2 and TT experimental campaigns at JET
P3-18	Jorge Maestre	Recent advances on the lithium impurity control system of IFMIF-DONES
P3-19	Gaetano Aiello	THE W7-X ECRH GYROTRON DIAMOND OUTPUT WINDOW: OIL AND WATER COOLED WINDOW PERFORMANCE AT 1.5 MW OPERATION
P3-20	Yuhu Zhai	Neutronics analysis and radiation effects on HTS coils and stabilizers for fusion energy systems
P3-21	Ling Zhang	The design of control and fault protection system for CRAFT power supply
P3-22	Francesco Mirizzi	Progress in the design of the ICRF launcher for DTT
P3-23	Christian Wimmer	Stabilizing long pulse D- extraction for NBI using a Cs shower
P3-24	YuanXun Liu	Optimization and Application of Comprehensive Protection Strategies for Multiple Fault Types and System-Level Protection Schemes in High-Power Pulse Power Supplies
P3-25	Michael Rott	Replacement of the inverters supplying the flywheel machine E22 of ASDEX Upgrade
P3-26	Quentin Le Coz	CEA design proposal for EU-DEMO hybrid HTS/LTS central solenoid: thermohydraulic studies
P3-27	Markus Teschke	Reduced forces operation mode of ASDEX Upgrade in-vessel coils: The ripping crowbar development project
P3-28	Simone Valenti	Transient Electrical Behaviour of DEMO Toroidal Field Coils System in Normal Operation and Fault Conditions
P3-29	Kwangpyo Kim	Vacuum commissioning and operation result after the KSTAR PFC Upgrade
P3-30	Kyoungso Nam	Bending Trial for the In-Situ Winding Machine Development of ITER In-Vessel Vertical Stability Coils



P3-31	Stefan Marsen	Upgrades of the Wendelstein 7-X ECRH plant towards higher power and reliable steady state operation
P3-32	Ranieri Marinari	Analyses and design of the cooling system for the DTT ICRH antenna
P3-33	Teuntje Tijssen	Performing hydrogen permeation experiments for fusion applications
P3-34	Daniel Alegre	Testing of advanced materials, solid W and liquid metals, for future nuclear reactors at OLMAT High Heat Flux facility
P3-35	Kihyun Lee	Characterization of negative ion production in Two Region Arc Plasma Ion Source
P3-36	Petr Barton	Development and testing of high-temperature vacuum insulations for COMPASS-U
P3-37	Saul Garavaglia	First RF operations of the gyrotron for the DTT ECRH system
P3-38	Gianluca Camera	Preliminary study of the static structural behaviour of the Faraday Screen bars of DTT ICH antenna under electromagnetic loads
P3-39	Lorenzo Giannini	Advances in Magnet and Shielding Designs for Fusion and High Energy Physics Applications
P3-40	Adrian Heiler	Monitoring the converter surface dynamics in negative hydrogen ion sources for ITER NBI
P3-41	Mauro Spro	CFD modelling of in-cryostat release of pressurised supercritical helium
P3-42	Aravind Shanmugasundaram	Structural Analysis of the US ITER Central Solenoid Magnet Cryogenic Piping System
P3-43	Urszula Wiącek	STUMM - monitoring module for DONES neutron source - technical challenges
P3-44	Dragan Poljak	Sensitivity analysis (SA) of the uncertainty propagation (UP) in static and dynamic simulations of beam profile at the IFMIF-DONES beam dump
P3-45	JongGab Jo	Development of a Slotted Waveguide Antenna for Lower Hybrid Fast Wave Coupling in KSTAR Plasmas
P3-46	Oliver Seibold-Benjak	25 Years of control of the flywheel generator EZ2 at IPP Garching - a necessary update to the latest state of the art
P3-47	Changwook Shin	Experimental Validation of Helium Cooling System Components for Test Blanket System in Fusion Reactors
P3-48	Daniele Busi	Progress in the design of flexible components for the in-vessel actuation system of DTT ECRH launchers
P3-49	Konstantina Voukelatou	Project & Quality Management activities for the SORGENTNA-RF project relying on Primavera P6 software: a lesson from the ITER experience.
P3-51	Sheng Dou	Design of the New Generation EAST Poloidal Field Magnet Power Supply
P3-52	Jimmy Scionti	COMSOL simulations for BiGyM plasma characterization
P3-53	Afra Romano	ECRH system of DTT: an overview and recent achievements



P3-54	Alfredo Pagliaro	Thermo-structural analysis of an optimized single-channel geometry for the steering mirror of DTT ECRH launchers
P3-55	Daniele Martelli	Design of a Thermal Mass Flow Meter for Lead Lithium
P3-56	Erik Walcz	Thermodynamic Analysis and Design Optimisation of the Pellet Extruder for EU-DEMO
P3-57	Aljaž Čufar	Neutronics Analyses for EU-DEMO 2023 Electron Cyclotron Port
P3-58	SHOGO HONDA	Nuclear, Thermal, and Shielding Design of Test Cell in A-FNS
P3-59	Alessandro Bruschi	Conceptual studies for the EU-DEMO EC system transmission line
P3-60	Mauro Cappelli	Advancements in Central Control for IFMIF-DONES: Integrating CODAC, MPS, and SCS into a Unified Control Framework
P3-61	Eleonora Gajetti	Development of a novel TPMS cooling structure for the launcher mirror M2 of the DTT ECH system
P3-62	Enrico Aymerich	A Machine Learning Approach for the Automatic Estimation of Heat Loads Distribution on STRIKE
P3-63	Julijan Peric	Water activation experiment under fusion-relevant conditions at the JSI TRIGA research reactor KATANA: Neutron field measurement system
P3-64	Valerio Tomarchio	Thermal structural analyses during cool down of the ITER Toroidal Field Coil in the Magnet Cold Test facility
P3-65	Mahmoud Bakr Arby	Advancements in Tritium Breeding: Insights from the LIBRA Project and Neutron Source Development at the University of Bristol
P3-66	Brian Grierson	High Field Non-Nuclear Blanket Component Testing User Facility to Complement International Capabilities
P3-67	ASHOK MANKANI	Design and Development of 300 kV, 2 A DC Power Supply for High Power and High Energy Accelerator Based Applications
P3-68	Hyun Wook Kim	Design Updates of a Fusion Superconductor Test Facility Magnet, SUCCEX
P3-69	Arata NISHIMURA	Neutron irradiation effect on Nb3Sn wire and ReBCO tape
P3-70	Mu-yong Kim	Research on Evaluation Method of Hysteresis Losses Due to Ripple Current During Operation of KSTAR PF Coils
P3-71	Andreas Döring	Overview of measures to reduce co-extracted electrons during long pulses in NBI sources for ITER
P3-72	Claus-Peter Käsemann	Modification of the auxiliary generator of ASDEX Upgrade's main flywheel generator EZ2 towards a reliable emergency power supply
P3-73	Jin Hun Park	Neutronics analysis of inboard side TF coil shielding performance through various shield blanket and vacuum vessel shielding options for Volumetric Neutron Source



P3-74	Dimitar Yordanov	Plasma property investigations during negative ion beam extraction in a half-sized ITER NBI ion source at ELISE test facility
P3-75	Kentaro Ochiai	Progress of A-FNS Engineering Design Activities
P3-76	Illia Mysiura	80 keV 1 MW NBI on COMPASS tokamak: the results and operational experience
P3-77	Silvio Giors	DESIGN OF THE CRYOGENIC DISTRIBUTION SYSTEM FOR ITER DISRUPTION MITIGATION BASED ON SHATTERED PELLETT INJECTION
P3-78	Alexander Avilés	Integrated RF Analysis of the beam propagation and stray radiation in the ITER ECRH Upper Launcher
P3-79	Léna DELPECH	ECRH system upgrade for WEST
P3-80	Kunihito Yamauchi	Coil energization tests in JT-60SA integrated commissioning
P3-81	Smruti Ranjan Mohanty	ROLE OF ADDITIONAL GRIDS ON ION FLOW DYNAMICS OF AN INERTIAL ELECTROSTATIC CONFINEMENT FUSION NEUTRON SOURCE
P3-82	Fabrizio Lisanti	Modelling and optimization of the cryogenic plant of the Divertor Tokamak Test (DTT)
P3-83	Patrick Blanchard	Experimental validation of the new HDPE-based neutron shielding on the TCV Tokamak
P3-84	Antonio Masiello	The manufacturing and assembly of the MITICA beam source and beam line components
P3-85	Nils-Werner Holstein	Specialized further developments and applications of the electrochemical hydrogen sensor in IFMIF-DONES research facilities
P3-86	Atsushi Owada	Gas analysis in vacuum vessel on JT-60SA integrated commissioning
P3-87	Marco De Bastiani	Multi-Physical Analysis of DTT TF quench in Cold Test Facility Configuration
P3-88	Claudia Salvia	Design Specifications for the Ion Cyclotron Heating Amplifier System in the Divertor Tokamak Test Facility
P3-89	Tom Galvin	Multiphysical modelling of superconducting coil discharge through varistors
P3-90	Niek den Harder	Measuring the beamlet divergence in negative ion based NBI systems for fusion: a diagnostic comparison
P3-91	Christian Hopf	Neutral Beam Injection for a Tokamak-based Volumetric Neutron Source
P3-92	Davide Macioce	Design and qualification of a ceramic insulating break for ITER's In-Vessel Coils
P3-93	Takahiro Shinya	Identification of 570 and 600 MHz RF noise emitted from 170 GHz gyrotron
P3-94	Sebastian Stanculovic	Testing the high power gyrotrons for fusion ECRH at KIT FULGOR - recent activities



P3-95	Eduardo Masia	Application of the Radio Species Transport Model to the JSI water activation loop
P3-96	Takaaki Iijima	Glow discharge cleaning on JT-60SA vacuum vessel in integrated commissioning
P3-97	Roberto Bonifetto	Design of the thermal shield for the Divertor Tokamak Test (DTT) facility
P3-98	Shaun de Witt	Data Management for Fusion Facilities - An Example on Interdisciplinary Collaboration
P3-99	Naoko OONO-HORI	Systematic evaluation of the irradiation resistance of REBCO with rare earth elements using first-principles calculations
P3-100	Santiago Becerril-Jarque	IFMIF-DONES: An overview of its irradiation modules
P3-101	Francesca Maria Castrovinci	Preliminary thermomechanical assessment of the prototypical mock-up of the DEMO WCLL first wall to be tested in the Water Loop facility
P3-102	Shu Tao	Design and development of stacked REBCO high temperature superconductors for fusion applications
P3-103	Ken Kajiwara	Final Design of the ITER EC H&CD Equatorial Launcher
P3-104	Domenico Regine	Sensitivity Analysis of DTT PF Coils Support Structures
P3-105	Marianna Di Pietrantonio	Contactless power supplies for low-voltage superconducting coils
P3-106	Nils Arden	Mockup Testing of the new Upper Divertor Coils of ASDEX Upgrade
P3-107	Michal Konrad Owsiak	Gathering and exposing experimental meta data through a dedicated catalog system
P3-108	Friedhelm Albers	Development and Optimization of the new Control Interface of the ASDEX Upgrade High Current Converters
P3-109	Johan Willem Oosterbeek	Microwave stray radiation measurement techniques
P3-110	Rahul Rayaprolu	Plasma characterisation and steady-state plasma operation of JULE-PSI
P3-111	Violeta Redondo	Design and evaluation of an advanced robotic bolting tool applied to IFMIF-DONES
P3-112	Elia Novarese	Towards a digital twin for control and optimization of MW-class gyrotrons for plasma heating in fusion reactors
P3-113	James Ridzon	Overview and Status of DIII-D High Field Side Lower Hybrid Current Drive System
P3-114	Michael Ross	Improved power calibration techniques for the DIII-D ECH system
P3-115	Myles Hildebrand	Lawson Machine 26: An Update on General Fusion's Magnetized Target Fusion Demonstration
P3-116	CHRISTIAN BACHMANN	Engineering concept of the VNS - a beam-driven tokamak for component testing
P3-117	Konan Yagasaki	A High-Power Oscillation Test of Dual-Frequency 1-MW Gyrotron

P3-118	Giorgio Mongiardini	Thermal-Hydraulic analysis of TBM mock-up in Water Loop facility under transient conditions
P3-119	Jeehyun Kim	High power conditioning of Twin-disk RF windows for KSTAR helicon current drive system
P3-120	Julien Hillairet	Status of the design of the WEST Ion Cyclotron Travelling Wave Array antennas
P3-121	Qian Jiang	Analysis of load energy feedback in DIII-D tokamak pulsed coil power supply
P3-122	Hiroto Yamada	Displacement damage relaxation process in multiple rare-earth substituted copper oxide superconductors by in situ electron irradiation
P3-123	Marcell Málics	The development of a small continuous flow para-hydrogen catalyst for cryogenic pellet experiments
P3-124	Mark Fortuna	Experimental validation of the MCNP neutron transport model of the TCV facility
P3-125	Marica Eboli	The LIFUS5/Mod3 Separate Effect Test Facility for PbLi/water interaction in the Nuclear Fusion Experimental Programme
P3-126	Ivan Alessio Maione	Electromagnetic study on Volumetric Neutron Source components for Fusion Applications
P3-127	Roland Friedl	Achieving high amplifications in a cw-driven optical cavity relevant for photoneutralization of negative ion beams
P3-128	Andrea Zappatore	Thermo-Mechanical Analysis of the DTT TF coil cooldown
P3-129	Federico Ledda	Computational investigation of radiation damage in superconductors for nuclear fusion applications
P3-130	Nagy Domonkos	Impact of internal geometry and operating parameters of propellant valves on pellet acceleration in shattered pellet injection technology
P3-131	Corrado Groth	First thermo-structural Vacuum Barrier design for EU DEMO feeders
P3-132	Alessandra Salvitti	A parametric thermo-structural analysis on the DTT ECH Transmission Line mirrors
P3-133	Hiroyuki Tanoue	Establishment of the manufacturing method of modular coils for the quasi-axisymmetric stellarator CFQS
P3-134	Simone Carusotti	Innovative toroidal and poloidal field coils conceptual design for tokamak
P3-135	Marco Cavenago	Long term stability of ion sources for NBI: conditioning and experiments in compact source NIO1
P3-136	SeongHee Hong	Neutronics analysis to reduce the shut-down dose rate in high energy beam transport section of the Integrated Breeding Test Facility
P3-137	Masashi Kisaki	Lessons learned from prototyping of acceleration grid segment for negative ion accelerator of ITER heating neutral beam injector
P3-138	Frederik Arbeiter	Status of the IFMIF-DONES High Flux Test Module

P3-139	Johanna Wydra	Systematic effect of composition accuracy and exchange reactions in tritiated gases to viscosity measurements
P3-140	Pietro Maccari	Numerical study of PbLi solidification in TBM shield and pre-test simulations of experimental tests in the IELLLO facility
P3-141	Tamara Andreeva	Mapping sensitivity for the 2022-2023 Wendelstein 7-X experimental campaign
P3-142	Hardik Mistry	Design, development and testing of a fast steerable launcher for ECRH System
P3-143	Aleksandra Dembkowska	Hydraulic characterization of the central cooling channel for the DEMO PF coil conductor
P3-144	Riccardo Ragona	Radio Frequency Sheath Minimization for the WEST Travelling Wave Array Antenna
P3-145	Pavel Hacek	Final design of poloidal field coils for COMPASS Upgrade
P3-146	Tommaso Patton	Progress and results of the first high voltage Vacuum Insulation Tests in MITICA
P3-147	Ferenczy Dániel	Upgrade design and analysis of the Quench Tank of the IFMIF-DONES Lithium Target System
P3-148	James Lovell	MAST-Upgrade Microwave Heating and Current Drive System - Launcher Design and Manufacture
P3-149	Jonathan Pearl	MAST-Upgrade Microwave Heating and Current Drive System - Diagnostics and Protection
P3-150	Helen Webster	UKAEA's technology development plans for microwave based HCD systems for future fusion devices
P3-151	ALESSANDRO DEL NEVO	Water cooled lithium lead thermal-HYDRAulic experimental platform: final design and progress of construction
P3-152	Kathrin Abraham	Tritium Extraction from Liquid Metal Breeding Blanket Materials at CNL
P3-153	Monika Lewandowska	Thermal-hydraulic analysis of the CORC® conductor for the innermost layer of the EU-DEMO CS coil
P3-154	Gábor Anda	Development of enhanced ion optics for Alkali Beam Emission Spectroscopy diagnostics in fusion plasmas
P3-155	Qi Yang	Progress of HINEG Series High Intensity Steady Neutron Sources
P3-156	Gianluca Palumbo	Plentiful Tritium generation by a FFHR to feed a fusion power plant with simplified blanket
P3-157	Gary McIntyre	Putting the Sun in a Box: An Industry Perspective on the Design and Manufacture of Plasma Facing Components
P3-158	Torben Beernaert	Model-Based Systems Engineering for Plasma Control System Design



**33<sup>rd</sup> SYMPOSIUM  
ON FUSION TECHNOLOGY**  
SEPTEMBER 22-27, 2024 DUBLIN, IRELAND

33<sup>rd</sup> Symposium on Fusion Technology, September 22–27, 2024, DCU, Ireland.

# THURSDAY

## 26 September 2024



# PROGRAMME

## POSTER PREPARATION

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08:00-09:00 Poster Preparation

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## PLENARY SESSION 4 (09:00 - 11:00)

### **The Mahony Hall, Helix, DCU**

09:00-09:40	<b>Rosaria Villari</b>	IP4.1
	Overview of Deuterium-Tritium nuclear operations at JET	
09:40-10:20	<b>Rob Buckingham</b>	IP4.2
	Maintenance Matters: considering plant operations from the outset of fusion machine design	
10:20-11:00	<b>Richard Pearson</b>	IP4.3
	Tritium: High-level overview of key challenges for commercial fusion deployment	
11:00-11:30	<b>Coffee Break</b>	

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## ORAL SESSIONS (11:30 – 13:00; 16:30 – 18:00)

### **The Mahony Hall, Helix, DCU – Oral Session 3A**

11:30-12:00	Topic A	<b>Gianfranco Federici</b>	IT3A.1
		(Tokamak-DEMO)EU DEMO Program Status Update	
12:00-12:20	Topic A	<b>David Weisberg</b>	O3A.1
		The Advanced Tokamak Fusion Pilot Plant: an optimized and integrated conceptual design	
12:20-12:40	Topic A	<b>Thomas Brown</b>	O3A.2
		The STAR power plant designed to balance physics, engineering, and cost requirements	
12:40-13:00	Topic A	<b>Byung Su Lim</b>	O3A.3
		Overcoming the challenges of the Future K-DEMO Superconductor Test Facility	
13:00-14:30		<b>Lunch Break</b>	
14:30-16:00		POSTER SESSION 4 / Virtual Poster Session	
16:00-16:30		<b>Coffee Break</b>	
16:30-17:00	Topic J	<b>Ashwini Kumar Mishra</b>	IT3A.2
		R&D journey of functionally graded tungsten/EUROFER coating for DEMO First Wall	
17:00-17:20	Topic J	<b>Yiran Mao</b>	O3A.4
		Demonstrating long tungsten fiber-reinforced tungsten composites as plasma-facing materials	
17:20-17:40	Topic J	<b>Motoki Nakajima</b>	O3A.5

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		Effects of magnetic force and magnetic field orientation on corrosion products precipitated on F82H	
17:40-18:00	Topic J	<b>Dmitry Terentyev</b> Development of irradiation and high-temperature resistant steels for fusion applications	O3A.6

### The Theatre, Helix, DCU – Oral Session 3B

11:30-12:00	Topic I	<b>Simon Niemes</b> Tritium Analytics and Related Accountancy Challenges	IT3B.1
12:00-12:20	Topic I	<b>Pietro Arena</b> Design of the WCLL BB in view of the Conceptual Design phase	O3B.1
12:20-12:40	Topic I	<b>Jaap G van der Laan</b> Status of the activities on tritium behaviour in thermal insulation materials and assemblies for ITER Test Blanket Systems	O3B.2
12:40-13:00	Topic I	<b>Kecheng Jiang</b> Progress on the design and related R&D activities for the novel solid-type PbLi breeding blanket for CFETR	O3B.3
13:00-14:30		Lunch Break	
14:30-16:00		POSTER SESSION 4 / Virtual Poster Session	
16:00-16:30		Coffee Break	
16:30-17:00	Topic F	<b>Hong Shen</b> High Current IGBT Voltage Source Converters for Fusion Application at ITER	IT3B.2
17:00-17:20	Topic F	<b>Monica Martinez Lopez</b> ITER Project Poloidal Field Coils Production Completion	O3B.4
17:20-17:40	Topic F	<b>Kazuya Hamada</b> Superconducting magnet operation in JT-60SA integrated commissioning test	O3B.5
17:40-18:00	Topic F	<b>Alessandro Lampasi</b> Tests of power supply and fast discharge unit for the Frascati Coil Cold Test Facility	O3B.6

### The Space, Helix, DCU – Oral Session 3C

11:30-12:00	Topic J	<b>Alexander von Müller</b> Additive manufacturing for fusion components	IT3C.1
12:00-12:20	Topic J	<b>Lee Packer</b> Insights from neutron activation studies on ITER materials at JET	O3C.1
12:20-12:40	Topic J	<b>Stefano Sgobba</b> Lessons Learnt from Manufacturing - Forging of Tokamak Components	O3C.2
12:40-13:00	Topic J	<b>Adriano Pepato</b>	O3C.3

		Metal Additive Manufacturing for the Divertor Tokamak Test facility	
<b>13:00-14:30</b>		<b>Lunch Break</b>	
14:30-16:00		POSTER SESSION 4 / Virtual Poster Session	
<b>16:00-16:30</b>		<b>Coffee Break</b>	
16:30-17:00	Topic B	<b>Gian Mario Polli</b> Status of DTT construction	IT3C.2
17:00-17:20	Topic B	<b>Haridev Chohan</b> Methodologies for Benchmark Experiments with Shielding Materials	O3C.4
17:20-17:40	Topic B	<b>Luka Snoj</b> KATANA facility for ITER relevant water activation experiments	O3C.5
17:40-18:00	Topic B	<b>Sara Perez-Martin</b> HELOKA-US Project: towards the verification of a DEMO-based conventional power plant technology	O3C.6

### **SOCIAL DINNER: GUINNESS STOREHOUSE (19:00-22:30)**

18:30-19:30	Coach transfer from Helix, DCU to Guinness Storehouse
19:00-22:30	Social Dinner, Guinness Storehouse. Further information can be viewed <a href="#">here</a>
22:30-23:00	Coach departures

### **POSTER SESSION 4 (THURSDAY 14:30 – 16:00)**

P4-1	Cody Fagan	2. Isotope Separation and Tritium Storage and Delivery System for Fusion Fuel Cycles
P4-2	Prashant DWIVEDI	Molecular Dynamics Insight into Tungsten Dust-Plasma Facing Component Interactions in Fusion Reactors
P4-3	Magzhan Aitkulov	GAS RELEASE KINETICS FROM NEUTRON IRRADIATED LI <sub>2</sub> TiO <sub>3</sub> SAMPLES
P4-4	Hannah Tipping	The Transient Thermal Ageing of Eurofer 97 by Mitigated Plasma Disruptions
P4-5	Gaurav Verma	Thermal-hydraulic Scaling of the Prototypical Mock-Up for European DEMO HCPB Breeding Blanket First Wall
P4-6	Brahim Chelihi	Dedicated Thermal and Thermo-mechanical Analyses in support of DEMO HCPB BB design
P4-7	Gwanghyeon Kwon	Integrated Steady-State Simulation Program for Isotope Separation and Water Detritiation Systems
P4-8	Guillermo de la Cuerda Velazquez	Performance of amorphous SiC coatings under thermal cycling, annealing and PbLi exposure



P4-9	Nerea García Rodríguez	Copper-stainless steels joint mechanical testing in IFMIF-DONES oriented SSTT specimens
P4-10	Yuri Igitkhanov	Achievement of the XPR in DEMO and pumping requirements
P4-11	Asyl Akhanov	KINETICS OF GAS RELEASE FROM TITANIUM BERYLLIDE IRRADIATED TO DIFFERENT NEUTRON FLUENCES
P4-12	Danilo Beiersdorf	Qualification of the laser powder bed fusion (L-PBF) manufacturing process for water-cooled protective components made from 316 L for plasma-exposed use in the Stellarator fusion device Wendelstein 7-X
P4-13	Haru Amano	Effect of residual stress on the electromagnetic non-destructive testing signals from components made of F82H steel
P4-14	Wenhai Guan	Preliminary Structural Design of WCCB TBM-Set
P4-15	Daniel Moya	A risk analysis for Helium Coolant System (HCS) from HCCP-TBS
P4-16	Francesco Colliva	On the evaluation of the DEMO WCLL Breeding Blanket sector thermal-hydraulic performances at a system level
P4-17	Federico Hattab	Activity assessment in water coolant loops and rooms using the SAETTA tritium transport code
P4-18	Tristan BATAL	WEST reciprocating langmuir probe with Titanium-Zirconium-Molybdenum armour material
P4-19	Saulet Askerbekov	KINETIC ANALYSIS OF TRITIUM RELEASE FROM IRRADIATED BIPHASIC LITHIUM CERAMICS $Li_4SiO_4$ - $Li_2TiO_3$ WITH DIFFERENT PHASE RATIOS
P4-20	Sergey Smolentsev	Effect of plasma disruption on liquid metal flow in a breeding blanket
P4-21	Hideaki Matsuura	Study on T production using high temperature gas cooled reactor for DEMO fusion reactor -H absorption properties of Zr sphere with Ni coating-
P4-22	Anna Wójcik-Gargula	Evidence of silver impurities in irradiated Cu-based alloys and implications for the long-lived radioactive waste from ITER
P4-23	Megan Thompson	Improving fusion vacuum pump modelling from experimental data taken from the JET Active Gas Handling System
P4-24	Annika Uihlein	Process Simulation of a Temperature Swing Absorption Process for Hydrogen Isotope Separation in the EU-DEMO Fuel Cycle
P4-25	Francesca Papa	PAV-2: a new mock-up to investigate niobium membrane-PAV performances optimization in PbLi systems
P4-27	Simone Siriano	Magnetohydrodynamic simulation of the WCLL breeding blanket with helical cooling pipes at high Hartmann and Grashof number



P4-28	Ralph Delmdahl	Laser Power Scaling in Pulsed Laser Deposition Production of HTS-Tapes
P4-29	David Pickersgill	Risk reduction in breeder blanket design through the integration of Model Based Systems Engineering and automated concept analysis
P4-30	Richard Walker	Future Tritium User R&D Facility for Small-scale Experiments
P4-31	Christos Tantos	Assessment of the DTT cryopump capabilities based on 3D DSMC analysis
P4-32	Alessandro Venturini	Progresses in developing the Tritium Extraction and Removal system for the Water-Cooled Lithium-Lead Breeding Blanket in EUROfusion
P4-33	Ciro Alberghi	Fins: improving tritium permeators with the adoption of extended surfaces
P4-34	Dinusha Jayasundara	A Framework for Assessing Tritium Availability in the Context of Plant Level Requirements
P4-35	Yuya Ando	Modeling of hydrogen isotope permeation through a liquid Sn supported by various metal substrates
P4-36	Oliver Leys	Controlling the Size of ACB Pebbles in the KALOS Process using selected Frequencies
P4-37	Julia Leys	Rig Design Development for In Situ Tritium Release Studies of EU Reference Ceramic Breeders
P4-38	Alex Aimetta	Multiphysics modelling of the Activated Corrosion Products generation and transport in the WCLL PbLi loop with GETTHEM
P4-39	Zhanna ZAURBEKOVA	Estimation of Tritium Transfer Parameters in Biphasic Lithium Ceramic Based on the Results of Reactor Irradiation Experiments
P4-40	María Urrestizala	Experimental analysis of protium and deuterium permeability ratios in Eurofer and SS316 steels
P4-41	Jon Azkurreta Fuentes	Development of a reverse permeation model for the calculation of hydrogen transport parameters.
P4-42	Ivan Fernandez-Berceruelo	SHANE, a tool to adapt complex geometries for neutron transport analysis
P4-43	Alex Little	Exploring high porosity lithium hydride for a fusion blanket material
P4-44	Ramil Gaisin	Innovative solid Pb-based compounds for neutron multiplication
P4-45	Alessandro Tassone	On the formal validation of ANSYS CFX for MHD heat transfer in liquid metals
P4-46	Jessica Marshall	Phase-dependent radiation response in reactive sintered Borides (RSBs)
P4-47	Kristina Tomic Luketic	IFMIF-DONES Users Community and Experimental Programme



P4-48	Cinta Lucía Marraco Borderas	Effect of ion irradiation on the surface electrical conductivity of CuCrZr at high frequencies
P4-49	Andrius Tidikas	Estimation of Activated Lithium and Corrosion Product Contribution to the Dose Rate in IFMIF-DONES Lithium Loop Cell
P4-50	Anurag Saigiridhari	Breeder Blanket Optioneering Process and impact of integrated tools in Concept evaluation
P4-51	Fumiya Nakamura	Tritium balance in fuel cycle system for a fusion DEMO with water-cooled solid breeding blanket
P4-52	Carlo Cristalli	Innovative RAFM steels with improved impact properties
P4-53	Alessia Santucci	On the coupling of the tokamak exhaust purification technologies and the vacuum system: layout, features and performances
P4-54	Suresh Srinivasan	Brazing of RSBs to steel by low activation joining methods
P4-55	Agostina Orefice	Mechanical design of the thermo-mechanical demonstrator SORAGENTINA-RF
P4-56	Marco Lamberti	Innovative bioshielding for nuclear application
P4-57	Norbert Wegrzynowski	Sustainable Methods of Lithium Isotope Separation
P4-58	Serena Crobu	Pd-Ag permeator code for the Tritium Processing System of the SORAGENTINA RF project
P4-59	Luigi Candido	Recent progresses in the development of SCYLLA breeding blanket for commercial fusion power reactors
P4-60	Alexander Feichtmayer	Experimental Investigation and Modeling of Low-Temperature Irradiation Creep - A Novel Approach for In-situ Material Testing
P4-61	Walter Shmayda	Evaluation of commercial palladium-based catalysts for hydrogen isotope separation
P4-62	Takashi Nozawa	Statistical feature of tensile properties of reduced-activation ferritic/martensitic steel F82H by small specimen test technique
P4-63	Ziwei Li	Extraction of Tensile Properties using Small Punch Tests for Baseline and Innovative Fusion Materials
P4-64	Taehyun HWANG	Thermal properties of plasma sintered Be <sub>12</sub> Ti
P4-65	Jae-UK Lee	Comparative analysis of R&D topics considering tritium handling technologies in K-DEMO using the Analytic Hierarchy Process
P4-66	Isogawa Hiroki	Experimental investigation of tritium release behavior after preheating at different temperatures from neutron irradiated LiAlO <sub>2</sub> with Zr for tritium production in high-temperature gas-cooled reactor
P4-67	Young ah Park	Fabrication of the Core-shell type tritium breeder for nuclear fusion reactor
P4-68	Yuzuha Kitagawa	Hydrogen solubility and tritium breeding performance of Li-Pb-Na for advanced fusion blanket

P4-69	JAE SUNG YOON	Development of HCCP TBM shield fabrication procedures and methods considering manufacturability
P4-70	James Dark	DEMO WCLL tritium transport simulations: Whole blanket inventory and permeation estimations
P4-71	Giacomo Aiello	Screening of suitable and testable materials for an European Volumetric Neutron Source
P4-72	Yi-Hyun Park	Preliminary Study on Tritium Release Properties of Li <sub>2</sub> TiO <sub>3</sub> Pebbles Manufactured by Powder Injection Molding (PIM) Process
P4-73	Arturs Zarins	Influence of sequential irradiation and thermal treatment on formation and accumulation of radiation-induced defect centres with paramagnetic properties in advanced ceramic breeder pebbles
P4-74	Roman Petráš	Effect of Pb-16Li on the flexural strength of ceramic materials after long-term exposure
P4-75	YUUKA MORI	Tritium transfer from neutron-irradiated lithium to gas phase and absorption into yttrium
P4-76	Yuki Setoguchi	Effect of Ti addition on tritium release behavior from neutron-irradiated FLiNaBe
P4-77	Aljaž Iveković	Hybrid Spark Plasma Sintering of W <sub>2</sub> C reinforced W: An Upscaling study
P4-78	Kazunari Katayama	Corrosion behavior of vanadium alloys with different titanium concentrations in static liquid lithium
P4-79	Masatoshi Kondo	Corrosion behavior of 316L austenitic steel in liquid lithium lead alloy under stress loading condition
P4-80	Jean MANZAGOL	A new pellet extrusion concept for nowadays tokamak plasma control system
P4-81	Saerom Kwon	Benchmarks of iron nuclear data for fusion neutron sources
P4-83	Tommi Lyytinen	Evaluation of divertor openings in HELIAS reactor neutronics
P4-84	Alžběta Endrychová	Comparative Study of PVD Techniques for Tungsten Deposition onto Graphite Substrate for Fusion Applications
P4-85	SooHwan Park	20 Hz pellet injection system for KSTAR
P4-86	Pavel Vladimirov	Helium diffusion and trapping in TiBe <sub>12</sub>
P4-87	Jaroslav Kekrt	Electrical conductivity of candidate ceramic materials for flow channel inserts in contact with liquid Pb-16Li
P4-88	Adéla Gottfriedová	Modelling of corrosion in PbLi loop of EU DEMO breeding blanket
P4-89	Pil-Kap JUNG	Verification of vacuum regeneration for Cryogenic Molecular Sieve Bed
P4-90	Antonio Aiello	Status of Ancillary Systems integration in ITER Port Cell#16 in view of the Preliminary Design Review

P4-91	Tazio Boatto	Design updates of cooling system for EU WCLL Test Blanket System in view of the ITER Preliminary Design Review
P4-92	Thierry Lebarbé	Steps to codification of CuCrZr alloy for fusion need in RCC-MRx 2022 edition
P4-93	Francesco Galleni	Lead-lithium/water interaction: ten years of numerical and analytical modelling activities at the University of Pisa
P4-94	Cecile Petesch	CONSIDERATION OF IRRADIATION IN THE DESIGN PROCESS: HOW TO CONSIDER HIGH IRRADIATIONS
P4-95	Yutaka Sugimoto	Bending strength of advanced neutron multipliers at high temperatures
P4-96	Diana Sgrelli	Validation and application of a model of hydrogen permeation in the PAV for the EU DEMO reactor
P4-97	Tamsin Jackson	Designing the UKAEA's new tritium research facility to be safe and minimise environmental impact
P4-98	Kotaro Seki	Evaluation of hardness change of W coated F82H by underwater explosive method after neutron irradiation
P4-99	Michael Klimenkov	Dose depended evolution of neutron irradiation induced defects in tungsten
P4-100	Yi-Ming LYU	Corrosion characteristics of oxidized Fe-Cr-Al steel as tritium permeation barrier in high temperature and high pressure water
P4-101	Yasuyuki Ogino	Radiation shielding and mechanical performance of sintered tungsten borides
P4-102	Aleksander Dubas	Progress Towards Large Scale Multiphysics Simulation of Breeder Blankets for Fusion Power Plants
P4-103	Matteo Lo Verso	Enhancing Computational Efficiency in Nuclear Fusion through Reduced Order Modelling: Applications in Magnetohydrodynamics
P4-104	Monica Gehrig	Exploration of the thermal design window for FLiBe-cooled ferritic steel first wall coolant channels
P4-105	Kazuya Sasaki	Phase stability and mechanical strength change of two-phase coexistence sintered compact pebble of Li <sub>8</sub> ZrO <sub>6</sub> and Li <sub>2</sub> O under usage conditions of tritium breeding material for thermonuclear fusion reactors
P4-106	Chase Taylor	Commissioning of the forced convection PbLi Tritium Extraction eXperiment loop
P4-107	Simone Noce	Experimental tests and numerical OSCAR-Fusion analysis for the characterization of Corrosion Behavior of CuCrZr under ITER Baking Conditions

P4-108	Minato Bannai	Changes in lithium vaporization behavior and mechanical strength of lithium titanate sintered bodies doped with excess lithium under reducing atmosphere and high-temperature conditions
P4-109	Martin Stiehler	Metallic Glasses - Versatile radiation-tolerant materials for Nuclear Fusion applications
P4-110	Axel Klix	Measurement and analysis of fast neutron and gamma ray spectra in the FNG Tungsten Benchmark Experiment
P4-111	Ronny Rives	Numerical study of bubble detachment from a submerged nozzle in liquid metal breeding material
P4-112	Chang-Hoon Lee	Effect of Quenching and Partitioning Heat treatment on microstructures and mechanical properties in RAFM steel
P4-113	Chansun Shin	Evaluating Helium-Induced Swelling in K-RAFM Steels Through Helium Implantation: The effect of Stress and Annealing Temperatures
P4-114	Carmine Risi	Modelling activities using STH codes to support the WCLL BB in-box LOCA experimental campaign
P4-115	Andrea Pucciarelli	Experimental analysis of LIFUS5/MOD3.3 campaigns in supporting the in-box LOCA code validation
P4-116	Nicolò Badodi	Validation of a SIMMER-III/ANSYS coupling technique on the LIFUS5/Mod3 dataset
P4-117	Takumi Chikada	Gamma-ray irradiation effects on fusion materials: hydrogen isotope retention and corrosion by liquid metals
P4-118	Yoshinao Matsunaga	Exhaust Pumping Characteristics of a Pump Train Using a Turbo Molecular Pump and the Kyoto Fusion Engineering Roughing Pump with Light Gases
P4-119	Giuseppe Agnello	Numerical structural and thermofluid-dynamic investigation of the Helium Cooled Pebble Bed breeding blanket concept with a modular cast pin monoblock design for the EU DEMO reactor
P4-120	Vittorio Cossu	A Novel Chemical Reaction Model for Safety Analysis of Lithium-Lead/Water Interaction in Water Cooled Lithium Lead Breeding Blankets Using SIMMER Code
P4-121	Tim Teichmann	A fuel cycle design tool and its application to UNITY-2
P4-122	Gabriele Ferrero	Sensitivity analysis and uncertainty quantification for Tritium transport in molten salt components for ARC-class reactors.
P4-123	Marco Cerocchi	Non-destructive ultrasonic inspections of small-scale mock-ups provided with advanced tungsten alloys for DEMO divertor target
P4-124	Teresa Hernandez	Electron beam welding behavior in eurofer IV subjected to the PbLi eutectic





P4-125	Sonia Pignatiello	Characterization of bubble dynamics in MHD conditions
P4-126	Chiwon Kim	Characterization of Creep and Low cycle fatigue behavior of K-RAFM steel at 550 °C
P4-127	Rosemary Brown	A High-Pressure Tritium Adsorption Apparatus for Isotope Separation Materials Testing
P4-128	Eléonore Geulin	Advancing pellet trajectory modeling in injection pipe: Introduction of the CRISTAL simulation tool
P4-129	Fabio Moro	Nuclear analyses in support of the Water-Cooled Lithium Lead DEMO reactor design development
P4-130	George Ana	Progress in the development of the HCPB TER architecture
P4-131	Alina Niculescu	HCPB TER components performance validation
P4-132	Catherine Monk	Deployable Tritium Detector Using Diamond Voltaic Structures for Use in Fusion Fuel Handling Facilities
P4-133	James Robert Braun	GEANT4 based design to measure the solubility of tritiated molecules in dual phase xenon
P4-134	Jae-Hwan Kim	Researches on pebble characterizations and gas pressure in Li <sub>2</sub> TiO <sub>3</sub> pebbles bed
P4-135	Kyosuke Namba	Current Status of the Commissioning of Kyoto Fusionengineering's Unique Integrated Testing facility (UNITY-1)
P4-136	Sota Hagiwara	Chemical compatibility of Zircalloy-4 in liquid metals LiPb and Sn
P4-137	Ovidiu Balteanu	The influence of non-steady state operation of a PEM electrolyzer on hydrogen isotope separation in a CECE process
P4-138	Cyril Courtessole	Characterization of MHD pressure losses in a mock-up of the WCLL Test Blanket Module
P4-139	Christina Koehly	MaPLE PbLi loop: A facility for investigating MHD convective flows
P4-140	Elena Tejado	On the high-temperature mechanical properties of a FeTiTaVW high entropy alloy
P4-141	Chiara Mistrangelo	3D analysis of magneto-convective duct flow in a non-uniform magnetic field
P4-142	Dai Hamaguchi	Material characterization of base-line tungsten for JA DEMO divertor
P4-143	Leo Bühler	Electric potential on a WCLL TBM mock-up in MHD experiments as indication for flow distribution in breeder units
P4-144	Biao Lyu	3D magneto-convective instabilities of liquid metal flow in a generic geometry related to WCLL blankets
P4-145	Jinho Bae	High Temperature Tensile Properties in 316L(N)-IG ESR rolled Plate with Autogenous Weld
P4-146	Dominic Batzler	In-situ measurement of tritium accumulation and decontamination of solids



P4-147	Robin Gröble	Analytics for Tritium Properties at TLK
P4-148	Makoto Nakamura	Analysis of the tritium fuel cycle of a helical/stellarator fusion pilot plant with refined modeling of the fueling and pumping systems
P4-149	Lucas Angelette	Logical Approach to Tritium Vacuum Pump Selection
P4-150	Tianyi Liu	Preliminary design of experiments to test tritium breeding capability for the water cooled ceramic blanket concept
P4-151	Kieran Ralston	Advancing Tritium Barrier Coatings: Insights into Erbium Oxide Deposition Techniques
P4-152	Yuefeng Qiu	DPA Estimation in IFMIF-DONES Irradiated Samples via Material Activation Analysis
P4-153	Toni Dunatov	High resolution TEM characterization of iron irradiated with different ion beam scanning modes
P4-155	Todd Whitehorne	Progress of the UNITY-2 Demonstration Fuel Cycle at Canadian Nuclear Laboratories
P4-156	Sabina Markelj	Influence of the kinetic energy of the exposing species on deuterium uptake in tungsten
P4-157	Luis Angel SEDANO MIGUEL	A Material Production and Qualification Plan for lead-lithium eutectic nuclear grades
P4-158	Rudreksh Patel	DEVELOPMENT OF PERMEATION BASED HYDROGEN ISOTOPES SENSOR AND ITS TESTING IN HYDROGEN ISOTOPES EXTRACTON SYSTEM
P4-159	Rongrong Luo	SCC Behavior of 9CrODS Steels in Supercritical Water for fusion application
P4-160	Pacheco Jose	EU ITER First Wall Panel CuCrZr Material procurement and characterization
P4-161	Joe Gillham	Dual ion He-Fe irradiation on cWC under reactor-like conditions
P4-162	Christian Day	Molybdenum heat exchangers for a LiPb coolant loop

## **VIRTUAL POSTER SESSION: (THURSDAY 14:30 – 16:00)**

VP-1	Guangming Zhou	Design of a prototypical mock-up of first wall for the EU-DEMO Helium Cooled Pebble Bed breeding blanket
VP-2	Olivier David	Using Programming By Demonstration tools for DEMO maintenance: a framework proposal with an experimental validation
VP-3	Jose Daniel Dupuy Exposito	MITICA Cryopump - Manufacturing, Assembly and Factory Acceptance Testing
VP-4	Silvio Ceccuzzi	Progress in the development of the ICRF system of DTT
VP-5	Fabien Jaulmes	Numerical modelling of plasma initiation and current ramp-up for pulse design in view of the operation of the COMPASS Upgrade tokamak
VP-6	Guillermo G. Fonfría	MHD simulations of a PbLi flow in a non-uniform magnetic field for a stellarator-shaped breeding blanket
VP-7	Gessica Cortese	Safety and Reliability analysis for water distillation process in EU-DEMO Coolant Purification System
VP-8	Yurii Kovtun	Radio frequency wall conditioning discharges in argon atmosphere at Uragan-2M stellarator
VP-9	Andres Pajares	Plasma-shape and position control development for NSTX-U using GSevolve
VP-10	Francesca Giovanna Lanzotti	A Physical Based Method for the Virtual Alignment and Assembly of the ITER Tokamak
VP-12	Fernando Roca Urgorri	Impact of multi-isotopic hydrogen trapping on tritium transport and retention in solids
VP-13	David Sosa Sánchez	Advanced neutronics for stellarators: nuclear design and integration of Dual Coolant Lithium Lead Breeding Blanket in HELIAS
VP-14	Sergi Colominas	High-temperature hydrogen sensors based on Sr(Ce <sub>0,9</sub> -Zr <sub>0,1</sub> ) <sub>0,95</sub> Yb <sub>0,05</sub> O <sub>3-α</sub>
VP-15	Davide Flammini	Tungsten benchmark shielding experiment at Frascati Neutron Generator
VP-16	Jiarong Fang	A New Tubular Ironless Linear Induction Motor Using Non-Interrupted Winding Method
VP-17	Katarzyna Borowiec	Modeling First Wall Protection Limiters for Magnetic Fusion Reactors
VP-18	Naonori Okada	Spectroscopic investigations of deuterium plasma detachment with ICR heating on the TPDsheet-U
VP-19	Kwanwoo NAM	Study on the New Manufacture of ITER Vacuum Vessel Thermal Shield
VP-20	Seung-Ju Lee	Demonstration of Enhanced Abnormal Plasma Current Detection in KSTAR Fast Interlock System

VP-21	Manabu Takechi	Design and manufacturing of fast plasma position control coil of JT-60SA
VP-22	Guido Mazzini	Analyses of Vacuum Vessel Pressure Suppression System during Divertor LOCA for Helium Cooled Pebble Bed DEMO
VP-23	Tiago Pomella Lobo	A Multi-Timescale approach for Fusion Power Plants Systems Codes focused on models for Fuel and Power Cycles
VP-24	Hiroyasu Tanigawa	Tensile properties of reduced activation ferritic/martensitic steel F82H under high magnetic fields
VP-25	Aleksandr Listopad	Present status of Heating Neutral Beam Injection system at TCV
VP-26	Hyoseong Gwon	Conceptual Radiation Shielding Design of the Integrated Breeding Test Facility in KFE
VP-27	Maurizio Furno Palumbo	Manufacturing & Qualification Activities of preliminary mock-ups for the First Wall modules of the DTT facility
VP-28	Guiomar Delgado Soria	Well-established standards for deuterium in tungsten matrices: an insight into secondary ion mass spectrometry research
VP-29	Roberto Pasqualotto	JT-60SA edge Thomson scattering procurement and tests
VP-30	Julian Nieto Valhondo	Integration of GPU-based data processing in the ITER Real-time Framework
VP-31	James Buckerfield	Design and Manufacture of the MITICA Cryopump
VP-32	Stefano Ciuffo	Design and Optimization of a Glow-Discharge Cleaning System for the Divertor Tokamak Test facility (DTT)
VP-33	Tommaso Bolzonella	Modelling-driven requirements for Error Field Control Coil application to initial JT-60SA plasmas
VP-34	Arkady Serikov	Radiation shielding analyses for the IFMIF-DONES Test Cell
VP-35	Michele Perrella	Primary and secondary creep of OFHC copper at various temperatures
VP-36	Kunihiro Ogawa	Experimental investigation on radiation detector for A-FNS
VP-37	Danilo Nicola Dongiovanni	Analyses of design extension conditions for DEMO tokamak building: ex-VV LOCA accident of breeding blanket heat transfer system
VP-38	Amelia Tincani	EU-DEMO concept design of Chemical and Volume Control System: design main drivers and challenges
VP-39	Gábor Kocsis	Pellet fragmentation studies for the ITER disruption mitigation system
VP-40	Koung Moon Kim	Thermal behavior of the KSTAR Tungsten Cassette Divertor during long-pulse plasma operation in 2023 Campaign
VP-41	Massimo Zucchetti	Fusion and Non-Proliferation. ARC as a safeguards implementation experiment



VP-42	Marilia Savva	Neutron spectra and fluence determination using VERDI detectors during JET DD, TT and DT operations
VP-43	Pedro Molina-Cabrera	Improvements to standard diagnostic preparation and data-quality monitoring in the TCV tokamak
VP-44	Mauro Dalla Palma	DTT vacuum vessel: examinations and proof test in compliance with vacuum and pressure equipment requirements
VP-45	Bruno Carl Angelo Spolaore	Structural behavior of electrical post-insulators for the MITICA Mock-Up Beam Source
VP-46	Piotr Perek	Preliminary design of ITER PCS Provisioning System
VP-47	Misa Iwamoto	Should fusion be global or domestic? A Multi-regional Input-output Analysis of Fusion Supply Chain
VP-48	Shutaro Takeda	Social License for Fusion Energy: A Global Survey on Public Awareness and Willingness-to-pay
VP-49	Shinji Hamaguchi	Improvement of Reliability in Long-Term Operation of the LHD Cryogenic System
VP-50	Sabino Pipolo	Supercapacitor bank design for the DTT coil power supplies
VP-51	Thomas Franke	Integration Studies of a Positive Neutral Beam Injector System into the Design of a Volumetric Neutron Source
VP-52	Gianluca Barone	DTT Thermal Shield: system integration and procurement
VP-53	Matthew Eklund	Techno-economic Assessment of a Tritium Extraction Unit based on the Study of the Tritium Extraction eXperiment and Vacuum Permeator Technology
VP-54	Xu Wu	Research on Signal Measurement Algorithm of Circular Dot Matrix Large Current Sensor
VP-55	Dhinesh Thanganadar	Power Cycle Design Modelling and Evaluation with Spherical Tokamak Concepts for STEP
VP-56	Ilia Ivashov	Optical System Development Challenges in ITER T-Monitor Diagnostic
VP-57	Massimiliano Mattei	Recent Developments in ITER Magnetic Control Algorithms
VP-58	Nikos Pelekasis	Spreading of a liquid metal coating in the presence of adhesion and Lorentz forces
VP-59	Sergej Gordeev	Fluid-Structural Analysis of the IFMIF-DONES Outlet Channel During Nominal Operation
VP-60	Francesco Crea	Fabrication of DEMO divertor target mock-ups by HRP technology with tungsten fiber reinforces tungsten as armour material
VP-61	Fabio Crescenzi	Feasibility study of the DEMO divertor target baffles
VP-62	Bennet Jose	Characterization of partially insulating materials for STEP TF magnets
VP-63	Alfredo Pironti	An Extended Kalman Filter for Plasma Equilibrium Reconstruction





**33<sup>rd</sup> SYMPOSIUM  
ON FUSION TECHNOLOGY**  
SEPTEMBER 22-27, 2024 DUBLIN, IRELAND

33<sup>rd</sup> Symposium on Fusion Technology, September 22–27, 2024, DCU, Ireland.

# FRIDAY

## 27 September 2024



# PROGRAMME



## **ORAL SESSIONS (09:00 – 10:30)**

### **The Mahony Hall, Helix, DCU – Oral Session 4A**

09:00-09:30	Topic E	<b>Kieran McCarthy</b> TESPEL: a powerful tool for investigating impurity control in the plasma core of magnetic confinement fusion devices	IT4A.1
09:30-09:50	Topic E	<b>Mirosław Zlobinski</b> In situ Tritium Retention Diagnostic using Laser-Induced Desorption: JET results and ITER outlook	O4A.1
09:50-10:10	Topic E	<b>Irene Álvarez-Castro, Topic E:</b> Computational assessment of signal from IFMIF-DONES High flux Test Module diagnostics	O4A.2
10:10-10:30	Topic E	<b>Daniel Dunai, Topic E:</b> Conceptual design of the divertor monitoring diagnostic for European DEMO	O4A.3
10:30-11:00		<b>Coffee Break</b>	

### **The Theatre, Helix, DCU – Oral Session 4B**

09:00-09:30	Topic G	<b>Rui Ding</b> Lessons learned from neutral-induced material erosion studies in EAST	IT4B.1
09:30-09:50	Topic G	<b>Robert Lunsford</b> Development of Solid Material Injectors for Supplemental Wall Conditioning and Discharge Enhancement	O4B.1
09:50-10:10	Topic G	<b>Juergen Rapp</b> MPEX project status and initial program for testing PFCs under fusion reactor conditions	O4B.2
10:10-10:30	Topic G	<b>Hanns Gietl</b> Synergetic heat flux and neutron irradiation test design for fusion reactor materials	O4B.3
10:30-11:00		<b>Coffee Break</b>	

### **The Space, Helix, DCU – Oral Session 4C**

09:00-09:30	Topic H	<b>Irene Zammuto</b> Status of the project of the new upper Divertor in ASDEX Upgrade	IT4C.1
09:30-09:50	Topic H	<b>Gabriele Benzoni</b> Remote Handling validation of the OPM-QDS connecting system for the IFMIF-DONES Target Assembly	O4C.1
09:50-10:10	Topic H	<b>Bojan Nemec</b> A Study of Bi-manual Maintenance Operations in the Tokamak Demonstration Fusion Power Plant	O4C.2



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10:10-10:30	Topic H	<b>Gioacchino Micciché</b> Development of the Remote Handling Integrated Test Campaign of IFMIF-DONES Test Cell Components	O4C.3
10:30-11:00		Coffee Break	

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### **PLENARY SESSION 5 (11:00 - 13:00)**

#### **The Mahony Hall, Helix, DCU**

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11:00-11:40	<b>Sehila Gonzalez</b> Global current status of Safety Regulation for Fusion	IP5.1
11:40-12:20	<b>Michael Tobin</b> Beyond Ignition: Xcimer Energy’s Path to Commercial Fusion Power” abstract attached	IP5.2
12:20-13:00	<b>Sven Wiesen</b> Power and Particle Exhaust Physics for Fusion Reactors	IP5.3

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### **SOFT PRIZE AND CLOSING CEREMONY**

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13:00-13:15	SOFT PhD Poster Prize Award
13:15-13:30	SOFT 2024 Closing Ceremony

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## LIST OF PRESENTING AUTHORS

### Invited Speakers

Alexander von Mueller	IT3C.1		
Ambrogio Fasoli	IP3.1	Lu Kun, IPP China	IP3.3
Anna Vu Trang	IT1C.1	Michael Tobin	IP5.2
Annika EKEDAHL	IT1A.1	Mu-Young Ahn	IT2A.1
Ashwini Kumar Mishra	IT3A.2	Petr Vondracek	IT1B.2
Benjamin Ell	IT2C.2	Phillipe Cara	IP2.1
Dirk Wunderlich	IT1C.2	Pietro Barabaschi	IP1.1
Felix Warmer	IT2A.2	Richard Pearson	IP4.3
Gian Mario Polli	IT3C.2	Rob Buckingham	IP4.2
Gianfranco Federici	IT3A.1	Rosaria Villari	IP4.1
Hiroshi Shirai	IP1.2	Rui Ding	IT4B.1
Hong Shen	IT3B.2	Samuele Dal Bello	IP2.3
Irene Zammuto	IT4C.1	Sehila Gonzalez	IP5.1
Jan Coenen	IP2.2	Simon Niemes	IT3B.1
Jean Paul Allain	IP3.2	Simonetta Turtu	IT2B.1
Joelle Elbez-Uzan	IT2C.1	Sven Wiesen	IP5.3
Kieran McCarthy	IT4A.1	Tamas Szepesi	IT1B.1
Klaus Schmid	IT2B.2	Vincenzo Narcisi	IT1A.2



## Contributed Speakers

Adriano Pepato	O3C.3	Kazuya Hamada	O3B.5
Alessandro Lampasi	O3B.6	Kecheng Jiang	O3B.3
Arthur Adriaens	O1C.4	Keisuke Mukai	O2A.1
Axel Lorenz	O1A.3	Koji Takahashi	O2A.5
Bernhard Sieglin	O1C.1	Lee Packer	O3C.1
Bjoern Brenneis	O1B.1	Louis Butt	O1B.6
Bojan Nemec	O4C.2	Luka Snoj	O3C.5
Bradut-Eugen Ghidersa	O1A.5	Miroslaw Zlobinski	O4A.1
Byung Su Lim	O3A.3	Monica Martinez Lopez	O3B.4
Cristina de la Morena	O2C.4	Morten Lennholm	O1C.2
Daniel Dunai	O4A.3	Motoki Nakajima	O3A.5
Daniele Aprile	O1B.4	Munseok Choe	O2C.5
David Weisberg	O3A.1	Nikolay Bykovskiy	O2B.3
Dmitry Terentyev	O3A.6	Paul Humrickhouse	O2C.2
Elodie Bernard	O2C.1	Paul Staniec	O2A.6
Filip Janky	O1C.3	Pietro Arena	O3B.1
Francisco Javier	O2A.4	Pilar Cano Megias	O1B.3
Fumito Okino	O2A.3	Priti Kanth	O2C.3
Gabriele Benzoni	O4C.1	Quentin Potiron	O1B.2
Garreth Aspinall	O2B.6	Remi Delaporte-Mathurin	O1A.6
George Sips	O1B.5	Robert Lunsford	O4B.1
Gioacchino Miccichè	O4C.3	Robert Pearce	O2A.2
Hanns Gietl	O4B.3	Robin Shuff	O2B.5
Haridev Chohan	O3C.4	Rosa Difonzo	O1C.6
Hyunjung Lee	O2B.2	Sara Perez-Martin	O3C.6
Inesh Kenzhina	O1A.4	Shawn Tang	O2C.6
Irene Álvarez-Castro	O4A.2	Sophie Carpentier	O1A.2
Jaap G van der Laan	O3B.2	Stefan Illy	O1C.5
Jannik Tweer	O1A.1	Stefano Sgobba	O3C.2
Jinggang Qin	O2B.1	Thomas Brown	O3A.2
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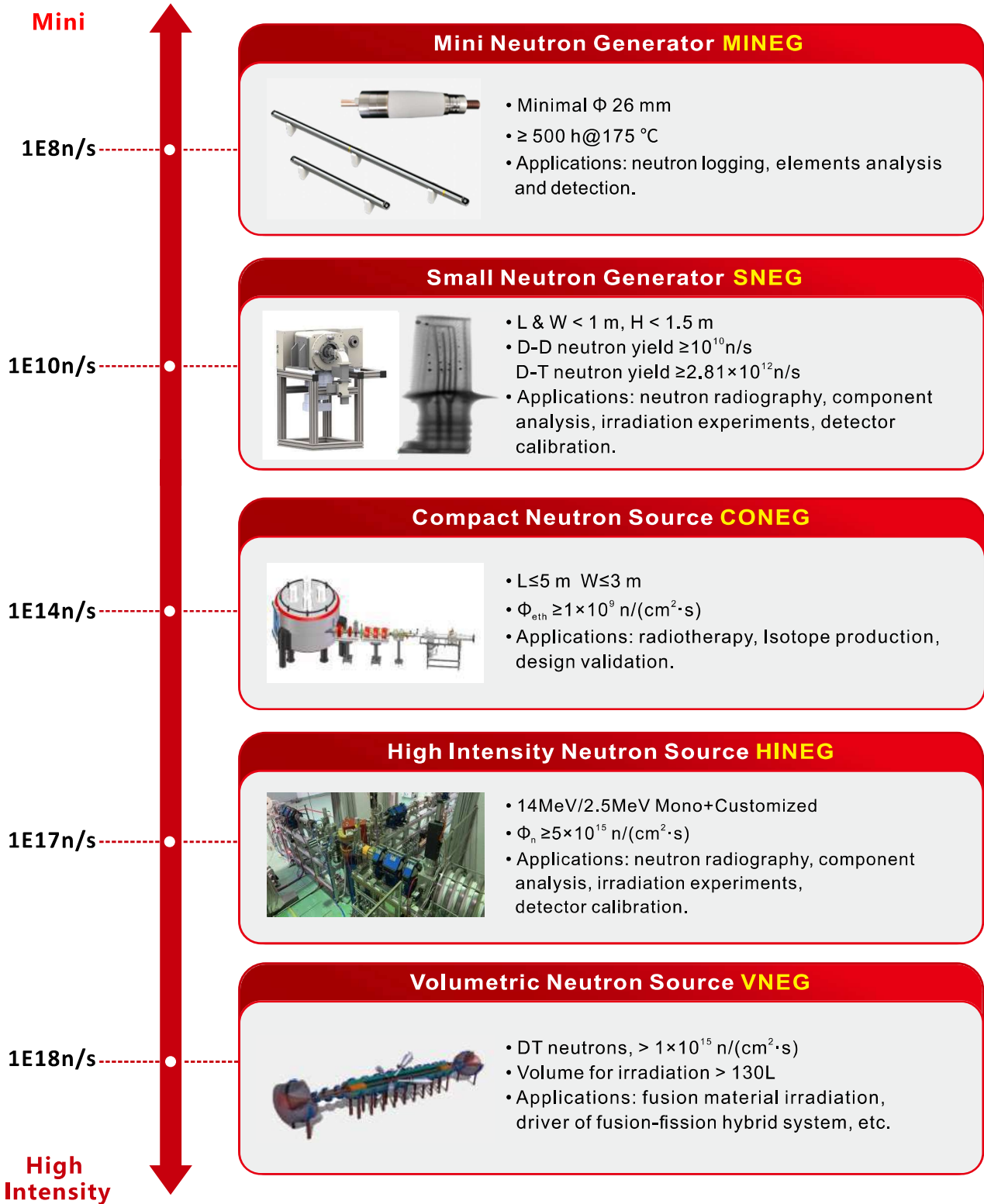
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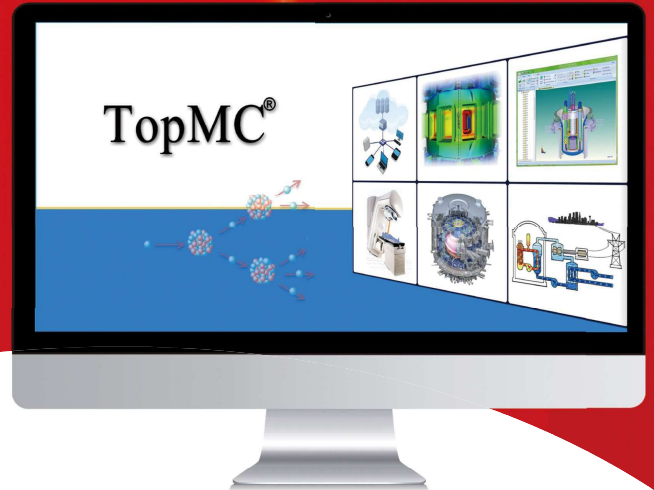
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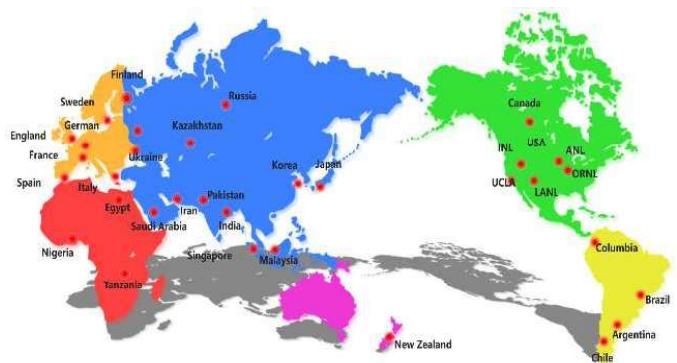
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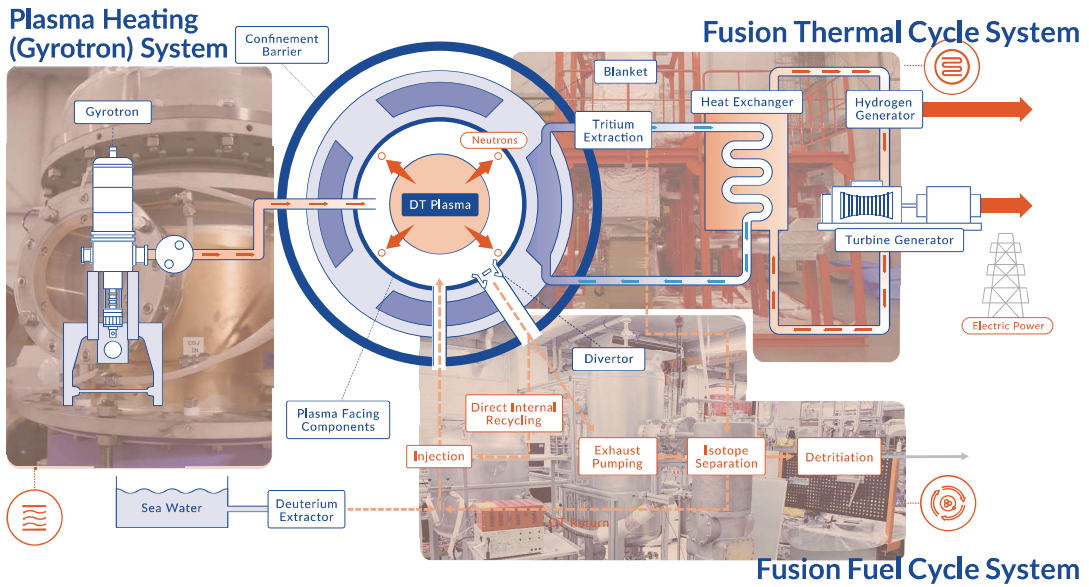
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TECHNOLOGY

**SCIENCE +**

**Illustrating Fusion Energy Power Plant and Our Enabling Technology Focus**



**Dedicated to Solving Advanced Engineering Challenges, Enabling Fusion Innovators**

**Our Strengths**



**Empowering Fusion Innovators**

The design and the development of critical plant technologies integral to fusion core.



**Unmatched Domain Excellence**

Our team comprised of Industry-leading experts with 800+ years of collective experience in fusion power.



**Partnering Globally**

Forging partnerships with top private and public Institutions.



**Hub of Japanese Fusion Know-how**

Leveraging our network of Japanese manufacturing firms and the ecosystem to deliver the best in the world.

**Who We Are**

Established in 2019, Kyoto Fusioneering is a privately-funded company uniquely dedicated to solving critical advanced engineering challenges for fusion plants.

Headquartered in Tokyo with a presence in the UK (Reading), the U.S. (Seattle), Germany (Karlsruhe) and *Kyoto Research Centre*, our in-house Kyoto R&D center, we leverage cutting-edge technologies.

including high-performing gyrotron systems, tritium fuel cycle technologies, and breeding blankets for tritium production.

We are conducting development of these technologies with strict safety management in compliance with regulations in each country and region.

*Download Our Report*



# digiLab

The trustworthy AI partner for industry

Come for a chat at **booth 4**,  
and scan the QR code to  
**register for the workshop:**



SCAN ME

## Join our workshop: **Unlocking the Power of Explainable AI in Fusion Energy Development**

Location: The Gallery Room, third floor, Helix, DCU

Date: Tuesday 24th September

Time: 12:30 - 14:00

- Hands-on workshop - discover how AI can revolutionise the future of fusion energy. Whether you're new to AI or simply curious about its potential, this session is designed to be accessible and engaging.
- We'll guide you through using AI to tackle complex challenges in fusion energy, even with limited data.
- We'll dive into a practical example using **twinLab**, a user-friendly tool, to apply these AI methods in real-time.
- You'll work on a tritium desorption scenario, where you'll see AI in action - predicting unseen scenarios and providing confidence bounds on those predictions.
- All SOFT attendees welcome - no prior experience required!

[digilab.co.uk](https://digilab.co.uk)

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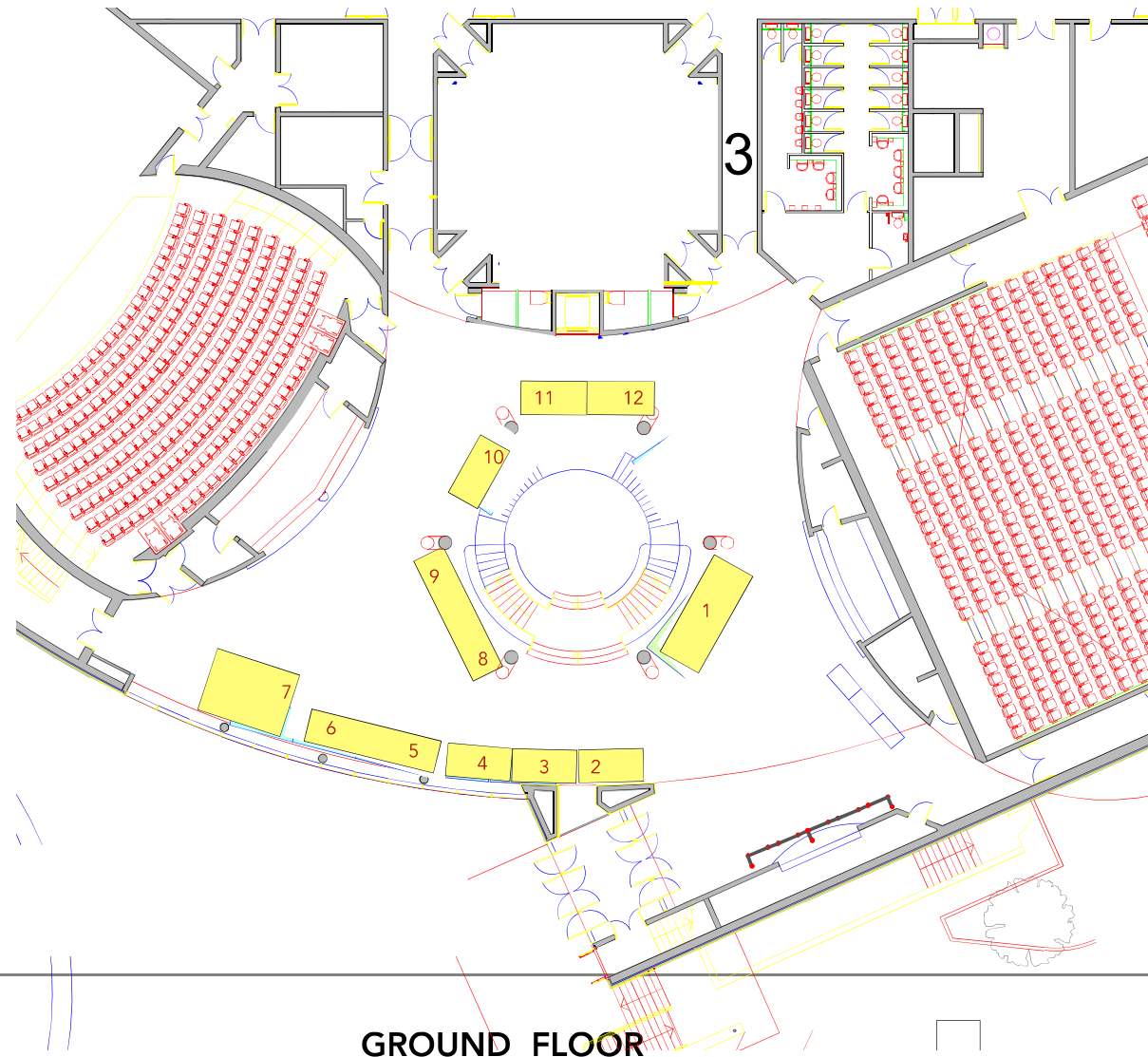
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	Booth no.	Company Name
GROUND	1	FDS
GROUND	2	OCEM
GROUND	3	Kyoto Fusionneering
GROUND	4	Digilab
GROUND	5	ICEX
GROUND	6	ICEX
GROUND	7	ITER Cinema Booth
GROUND	8	ITER Organization
GROUND	9	F4E
GROUND	10	SYES
GROUND	11	Schmiedewerke Gröditz GmbH
GROUND	12	Rolf Kind GmbH
FIRST	13	DTT Scarl
FIRST	14	Hidden Analytical
FIRST	15	Gauss Fusion
FIRST	16	Bruker EST
FIRST	17	Axon
FIRST	18	SAES
SECOND	19	BigScience.nl
SECOND	20	KME
SECOND	21	General Atomics



GROUND FLOOR

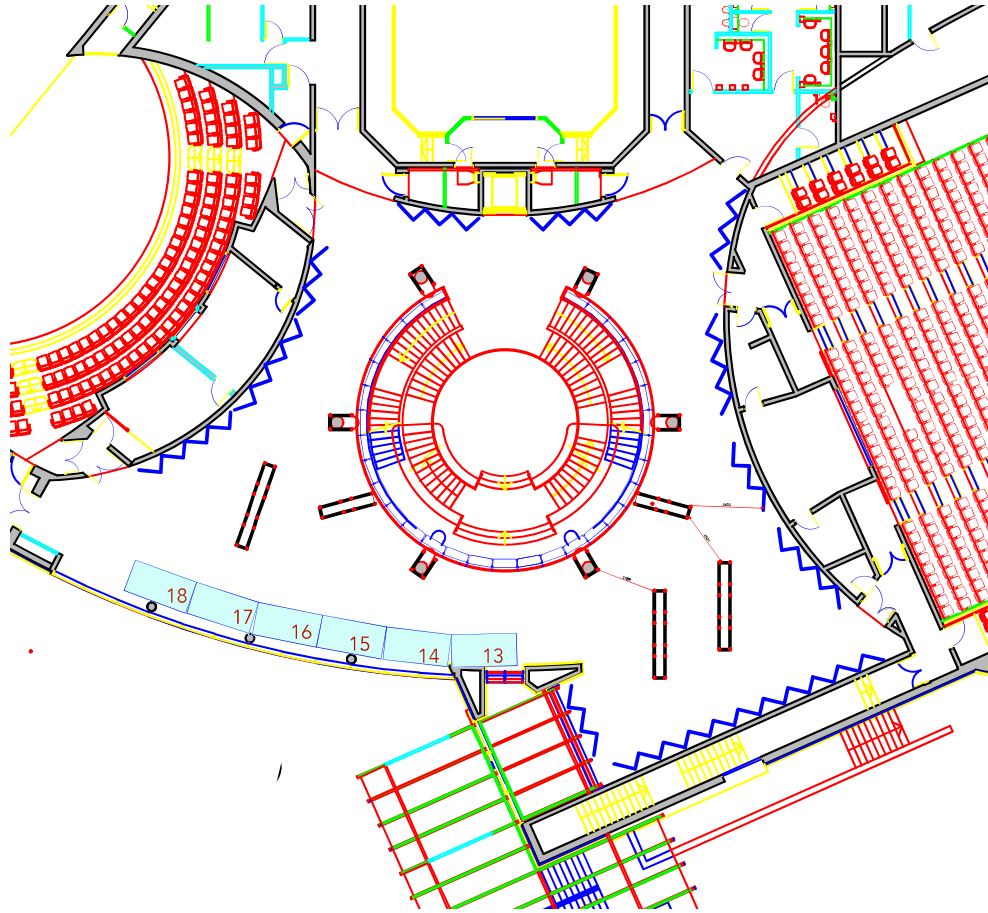


**33<sup>rd</sup> SYMPOSIUM  
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● 3M X 1.5M

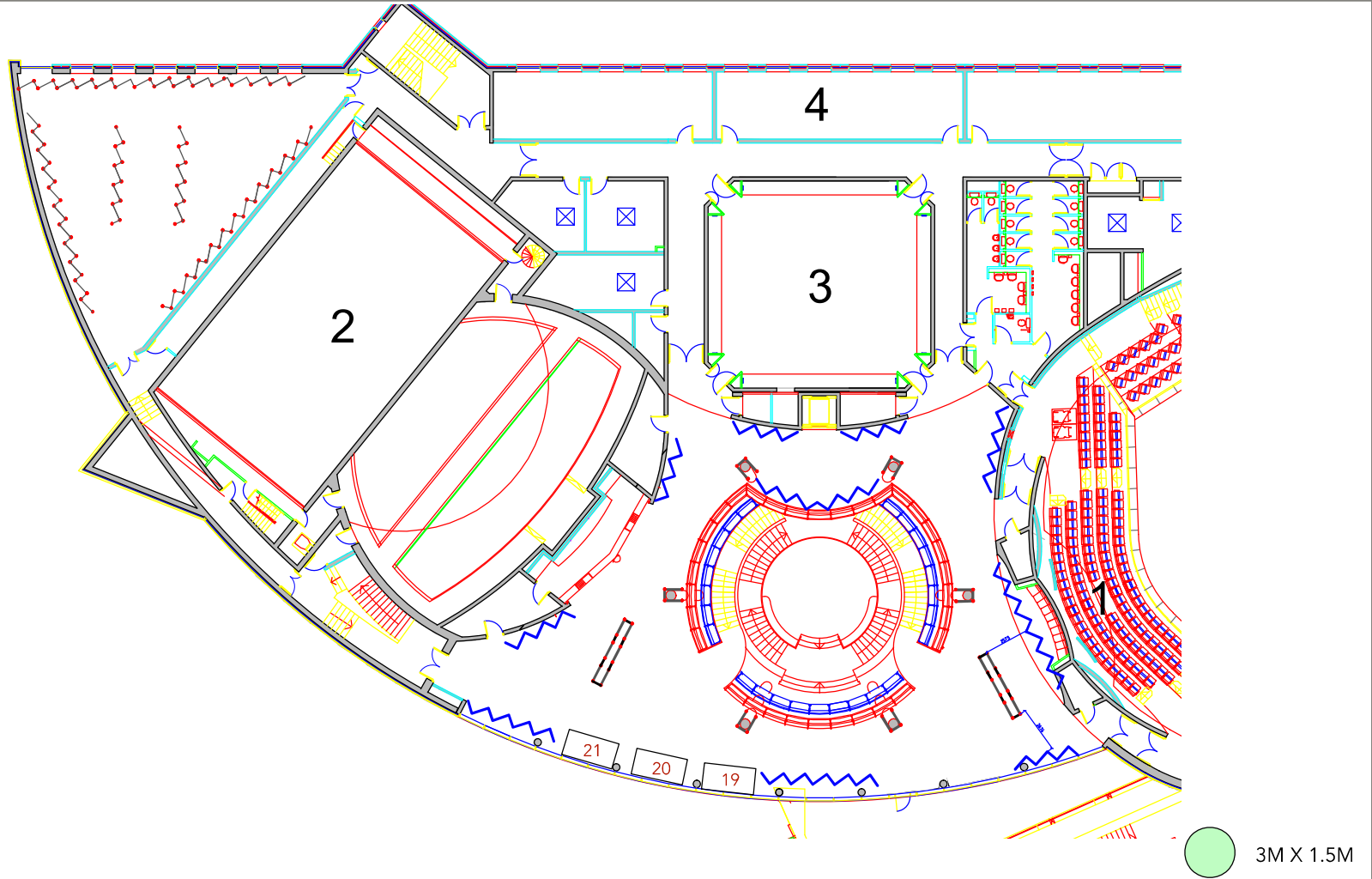


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**FIRST FLOOR**

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