



**33rd SYMPOSIUM
ON FUSION TECHNOLOGY**
SEPTEMBER 22-27, 2024 DUBLIN, IRELAND

33rd SYMPOSIUM ON FUSION TECHNOLOGY

22 —27 September 2024

The Helix,

Dublin City University, Ireland

Programme Booklet (DRAFT)

TABLE OF CONTENTS:

	Page
<u>SUNDAY, 22 SEPTEMBER 2024</u>	3
REGISTRATION (16:30 — 19:00)	3
<u>MONDAY, 23 SEPTEMBER 2024</u>	4
OPENING CEREMONY AND PLENARY SESSION 1 (09:00 — 11:00)	4
ORAL SESSION 1 (MORNING 11:30 — 13:00) (AFTERNOON 16:30 — 18:00)	4
SOCIAL EVENT (19:00 — 21:00)	6
<u>TUESDAY, 24 SEPTEMBER 2024</u>	7
PLENARY SESSION 2 (09:00 — 11:00)	7
ORAL SESSIONS 2 (MORNING 11:30 — 13:00) (AFTERNOON 16:30 — 18:00)	7-8
INDUSTRIAL SESSION (14:30-18:00)	9
<u>WEDNESDAY, 25 SEPTEMBER 2024</u>	10
PLENARY SESSION 3 (09:00 — 11:00)	10
EC INNOVATION SOFT PRIZE CEREMONY (11:30 — 12:00)	10
SOCIAL EXCURSION (14:30 — 18:30)	10
PUBLIC OUTREACH EVENT (15:30 — 16:30)	10
<u>THURSDAY, 26 SEPTEMBER 2024</u>	11
PLENARY SESSION 4 (09:00 — 11:00)	11
ORAL SESSION 3 (MORNING 11:30 — 13:00) (AFTERNOON 16:30 — 18:00)	11
SOCIAL EVENT (19:30 — 23:00)	13
<u>FRIDAY, 27 SEPTEMBER 2024</u>	14
ORAL SESSION 4 (09:00 — 10:30)	14
PLENARY SESSION 5 AND CLOSING CEREMONY (11:00 — 13:30)	15
SOFT PHD POSTER PRIZE AWARD (13:00 — 13:15)	15
SOFT 2024 CLOSING CEREMONY (13:15 — 13:30)	15
<u>POSTER SESSIONS</u>	
Poster Session I (MONDAY 14:30 — 16:30)	16
Poster Session II (TUESDAY 14:30 — 16:30)	
Poster Session III (WEDNESDAY 12:00 — 13:30)	
Poster Session IV (THURSDAY 14:30 — 16:30)	
Poster Session IV (Virtual) (THURSDAY 14:30 — 16:30)	

SUNDAY, 22 SEPTEMBER 2024

REGISTRATION

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

MONDAY, 23 SEPTEMBER 2024**REGISTRATION**

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

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**

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

The Theatre, Helix, DCU – Oral Session 1B

11:30-12:00 Topic E **Tamas Szepesi** IT1B.1
Visible video diagnostics for the support of Wendelstein 7-X and JT-60SA commissioning and operation

12:00-12:20	Topic E	Björn Brenneis Experiments on Specular Wavy Liquid Metal Surface of Selected Optical Distance Sensors from Several Meters	O1B.1
12:20-12:40	Topic E	Quentin Potiron 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	Pilar Cano Megias 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 I	
16:00-16:30		Coffee Break	
16:30-17:00	Topic B	Petr Vondracek COMPASS Upgrade: from design to construction Status of the COMPASS Upgrade tokamak	IT1B.2
17:00-17:20	Topic B	Mattia Siccinio Physics Basis of a Volumetric Neutron Source (VNS) for component testing and qualification	O1B.4
17:20-17:40	Topic B	George Sips The DIII-D National Fusion Facility, supporting ITER and the Reactor Path	O1B.5
17:40-18:00	Topic B	Louis Butt 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	Anna Vu Trang Progress in the ITER Plasma Control System design	IT1C.1
12:00-12:20	Topic D	Bernhard Sieglin H-Mode density limit disruption avoidance in ASDEX Upgrade, TCV and JET	O1C.1
12:20-12:40	Topic D	Morten Lennholm Burn relevant D-T mixture control at JET	O1C.2
12:40-13:00	Topic D	Filip Janky SOPHIA: a tokamak simulator	O1C.3
13:00-14:30		Lunch Break	
14:30-16:00		POSTER SESSION I	
16:00-16:30		Coffee Break	
16:30-17:00	Topic C	Deirdre Boilson ITER heating systems and the new baseline	IT1C.2
17:00-17:20	Topic C	Arthur Adriaens An automatic matching system for the ICRF antenna at TOMAS	O1C.4
17:20-17:40	Topic C	Dirk Wunderlich CW beam extraction from the NBI test facility ELISE: Approaching the ITER target values	O1C.5
17:40-18:00	Topic C	Shawn Tang	O1C.6

Results from the High-Power Helicon Current Drive System at DIII-D

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

18:00-19:00	Coach transfer from Helix, DCU to Croke Park
19:30-21:30	SOFT 2024 Opening Ceremony, Croke Park. Further information can be viewed HERE

TUESDAY, 24 SEPTEMBER 2024**REGISTRATION**

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

PLENARY SESSION 2 (09:00 - 11:00)**The Mahony Hall, Helix, DCU**

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

ORAL SESSIONS (11:30 – 13:00; 16:30 – 18:00)**The Mahony Hall, Helix, DCU – Oral Session 2A**

11:30-12:00	Topic I	Mu-Young Ahn Status of KO-EU joint development for HCCP TBM	IT2A.1
12:00-12:20	Topic I	Keisuke Mukai Synthesis and evaluations of tritium breeding performance of Li-Be hybrid ceramics	O2A.1
12:20-12:40	Topic I	Robert Pearce Design, Development and Manufacture of the ITER Torus and Cryostat Cryopumps	O2A.2
12:40-13:00	Topic I	Kristin Skrecky Tritium Fuel Cycle Modelling	O2A.3
13:00-14:30		Lunch Break	
14:30-16:00		POSTER SESSION II	
16:00-16:30		Coffee Break	
16:30-17:00	Topic A	Felix Warmer Advances in Stellarator Physics and Engineering – more than just an alternative concept	IT2A.2
17:00-17:20	Topic A	Francisco Javier Fuentes Best Practices and Methodology on Tokamak Dimensional Risk Management: ITER to DEMO	O2A.4
17:20-17:40	Topic A	Koji Takahashi Achievement of First Plasma and Successful Integrated Commissioning in JT-60SA	O2A.5
17:40-18:00	Topic A	Paul Staniec Lessons Learnt from AGHS supporting JET for the DTE2/DTE3 campaigns: Operational Limitations, Bottlenecks, and Impact of Completed/Outstanding Upgrades	O2A.6

The Theatre, Helix, DCU – Oral Session 2B

11:30-12:00	Topic F	Simonetta Turtu The DTT Magnet System from Design to Procurement and Test	IT2B.1
12:00-12:20	Topic F	Jinggang Qin Design and manufacturing technology development of HTS CICC magnet for the next fusion reactor	O2B.1
12:20-12:40	Topic F	Walid Abdel Maksoud French HTS superconducting magnets "SupraFusion" development program	O2B.2
12:40-13:00	Topic F	Nikolay Bykovskiy Design, construction and test of high-current thermal switches using Nb-Ti and MgB ₂ wires	O2B.3
13:00-14:30		Lunch Break	
14:30-16:00		POSTER SESSION II	
16:00-16:30		Coffee Break	
16:30-17:00	Topic G	Klaus Schmid T-retention in tungsten and EUROFER and its influence on tritium self-sufficiency	IT2B.2
17:00-17:20	Topic G	Johann Riesch High heat flux testing of plasma-facing components for the compact, high field tokamak SPARC	O2B.4
17:20-17:40	Topic G	Robin Shuff ITER NHF First Wall Full Scale Prototype manufacturing and testing	O2B.5
17:40-18:00	Topic G	Garreth Aspinall 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	Joelle Elbez-Uzan Demo Safety Analysis	IT2C.1
12:00-12:20	Topic K	Elodie Bernard Overview of the TITANS (Tritium Impact and Transfer in Advanced Nuclear ReactorS) project	O2C.1
12:20-12:40	Topic K	Paul Humrickhouse Impact of coatings on decay heat and waste associated with fusion components	O2C.2
12:40-13:00	Topic K	Shutaro Takeda Social License for Fusion Energy: A Global Survey on Public Awareness and Willingness-to-pay	O2C.3
13:00-14:30		Lunch Break	
14:30-16:00		POSTER SESSION II	
16:00-16:30		Coffee Break	
16:30-17:00	Topic C	Benjamin Ell Advancements in Gyrotron Efficiency: From Single- to Multi-stage Depressed Collectors	IT2C.2

17:00-17:20	Topic C	Cristina de la Morena Solid-state radiofrequency amplifier technology for fusion applications	O2C.4
17:20-17:40	Topic C	Munseok Choe 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	Rosa Difonzo Investigation and optimization of innovative TPMS-based cooling system for the resonant cavity of gyrotrons for fusion application I-D	O2C.6

INDUSTRIAL SESSION

The Gallery, Floor 3, Helix, DCU

14:30-18:00	INDUSTRIAL SESSION
-------------	--------------------

WEDNESDAY, 25 SEPTEMBER 2024**REGISTRATION**

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

PLENARY SESSION 3 (09:00 - 11:00)**The Mahony Hall, Helix, DCU**

09:00-09:40	Ambrogio Fasoli EUROfusion's Vision for Advancing the European Fusion Energy Roadmap	IP3.1
09:40-10:20	Jean Paul Allain Building Bridges: A Bold Vision for the Fusion Energy Sciences Program in the U.S.	IP3.2
10:20-11:00	Lu Kun, IPP China Recent progresses of CN superconducting tokamak development	IP3.3
11:00-11:30	Coffee Break	
11:30-12:00	European Commission Innovation SOFT prize ceremony	
12:00-13:30	Poster Session III	
13:30-14:30	Lunch Break	

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 HERE

PUBLIC OUTREACH EVENT: (15:30-16:30)

PROGRAMME TO BE CONFIRMED

THURSDAY, 26 SEPTEMBER 2024**PLENARY SESSION 4 (09:00 - 11:00)****The Mahony Hall, Helix, DCU**

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

ORAL SESSIONS (11:30 – 13:00; 16:30 – 18:00)**The Mahony Hall, Helix, DCU – Oral Session 3A**

11:30-12:00	Topic A	Gianfranco Federici (Tokamak-DEMO)EU DEMO Program Status Update	IT3A.1
12:00-12:20	Topic A	David Weisberg The Advanced Tokamak Fusion Pilot Plant: an optimized and integrated conceptual design	O3A.1
12:20-12:40	Topic A	Thomas Brown The STAR power plant designed to balance physics, engineering, and cost requirements	O3A.2
12:40-13:00	Topic A	Byung Su Lim Overcoming the challenges of the Future K-DEMO Superconductor Test Facility	O3A.3
13:00-14:30		Lunch Break	
14:30-16:00		POSTER SESSION IV / Virtual Poster Session	
16:00-16:30		Coffee Break	
16:30-17:00	Topic J	Ashwini Kumar Mishra R&D journey of functionally graded tungsten/EUROFER coating for DEMO First Wall	IT3A.2
17:00-17:20	Topic J	Yiran Mao Demonstrating long tungsten fiber-reinforced tungsten composites as plasma-facing materials	O3A.4
17:20-17:40	Topic J	Motoki Nakajima Effects of magnetic force and magnetic field orientation on corrosion products precipitated on F82H	O3A.5
17:40-18:00	Topic J	Dmitry Terentyev 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	Simon Niemes Tritium Analytics and Related Accountancy Challenges	IT3B.1
12:00-12:20	Topic I	Pietro Arena Design of the WCLL BB in view of the Conceptual Design phase	O3B.1

12:20-12:40	Topic I	Jaap G van der Laan 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	Kecheng Jiang 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 IV	
16:00-16:30		Coffee Break	
16:30-17:00	Topic F	Hong Shen High Current IGBT Voltage Source Converters for Fusion Application at ITER	IT3B.2
17:00-17:20	Topic F	Monica Martinez Lopez ITER Project Poloidal Field Coils Production Completion	O3B.4
17:20-17:40	Topic F	Kazuya Hamada Superconducting magnet operation in JT-60SA integrated commissioning test	O3B.5
17:40-18:00	Topic F	Alessandro Lampasi 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	Alexander von Müller Additive manufacturing for fusion components	IT3C.1
12:00-12:20	Topic J	Lee Packer Insights from neutron activation studies on ITER materials at JET	O3C.1
12:20-12:40	Topic J	Stefano Sgobba Lessons Learnt from Manufacturing - Forging of Tokamak Components	O3C.2
12:40-13:00	Topic J	Adriano Pepato Metal Additive Manufacturing for the Divertor Tokamak Test facility	O3C.3
13:00-14:30		Lunch Break	
14:30-16:00		POSTER SESSION IV	
16:00-16:30		Coffee Break	
16:30-17:00	Topic B	Gian Mario Polli Status of DTT construction	IT3C.2
17:00-17:20	Topic B	Haridev Chohan Methodologies for Benchmark Experiments with Shielding Materials	O3C.4
17:20-17:40	Topic B	Luka Snoj KATANA facility for ITER relevant water activation experiments	O3C.5
17:40-18:00	Topic B	Sara Perez-Martin HELOKA-US Project: towards the verification of a DEMO-based conventional power plant technology	O3C.6

SOCIAL DINNER: GUINNESS STOREHOUSE (18:30-23:00)

18:00-19:30	Coach transfer from Helix, DCU to Guinness Storehouse
20:00-23:00	Social Dinner, Guinness Storehouse. Further information can be viewed HERE

FRIDAY, 27 SEPTEMBER 2024**ORAL SESSIONS (09:00 – 10:30)****The Mahony Hall, Helix, DCU – Oral Session 4A**

09:00-09:30	Topic E	Kieran McCarthy 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	Mirosław Zlobinski In situ Tritium Retention Diagnostic using Laser-Induced Desorption: JET results and ITER outlook	O4A.1
09:50-10:10	Topic E	Hugo Bajas Innovative Fiber Optic Sensors for Enhanced Temperature Monitoring and Quench detection in High Temperature Superconducting coil	O4A.2
10:10-10:30	Topic E	Andrea Muraro Enhancement of the GEM based soft x ray diagnostic system at MAST-U	O4A.3
10:30-11:00		Coffee Break	

The Theatre, Helix, DCU – Oral Session 4B

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

The Space, Helix, DCU – Oral Session 4C

09:00-09:30	Topic H	Irene Zammuto Status of the project of the new upper Divertor in ASDEX Upgrade	IT4C.1
09:30-09:50	Topic H	Gabriele Benzoni Remote Handling validation of the OPM-QDS connecting system for the IFMIF-DONES Target Assembly	O4C.1
09:50-10:10	Topic H	Bojan Nemec A Study of Bi-manual Maintenance Operations in the Tokamak Demonstration Fusion Power Plant	O4C.2
10:10-10:30	Topic H	Alessandro Lo Bue Application of Virtual Fitting in the Manufacturing of the ITER European Vacuum Vessel Sectors	O4C.3
10:30-11:00		Coffee Break	

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

The Mahony Hall, Helix, DCU

11:00-11:40	Sehila Gonzalez Global current status of Safety Regulation for Fusion	IP5.1
11:40-12:20	Marco Wischmeier Power and Particle Exhaust Physics for Fusion Reactors	IP5.2
12:20-13:00	Susana Reyes Beyond Ignition: Xcimer Energy’s Path to Commercial Fusion Power” abstract attached	IP5.3

SOFT PRIZE AND CLOSING CEREMONY

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

POSTER SESSION I

POSTER SESSION II

POSTER SESSION III

POSTER SESSION IV

**POSTER Session and times will be made available to presenters after the registration deadline, 23 August 2024.