

22-27 September 2019
Budapest, Hungary

ISFNT14

14th International Symposium on Fusion Nuclear Technology

Final Programme

On behalf of the Local Organising Committee, it is our great pleasure to welcome you to the 14th International Symposium on Fusion Nuclear Technology, in Budapest, Hungary, from 22nd to 27th September 2019.

“Bridging Science and Technology”

We selected this motto to emphasize the importance of the dialogue and tightest collaboration between scientists and engineers, which is more than necessary to successfully achieve the century-long dream of humankind – bringing the power of the Sun to Earth.

The International Symposium on Fusion Nuclear Technology (ISFNT) is one of the most important international events organised with the aim to foster interactions among scientists and engineers, to exchange information on all scientific and engineering aspects of fusion nuclear science and technology. It also represents great opportunities for reporting on recent technical progress, discussing many multidisciplinary issues and driving forward international collaboration for the promotion of fusion energy development. The symposium addresses near-term fusion devices and long-term reactor technologies, as well. We encourage contributions related to science, engineering, facilities, experiments, modelling, analysis, design and safety.

The Committee is especially pleased that the ISFNT-14 will be hosted in the beautiful Hungarian capital city, Budapest. We do hope that after the busy symposium programme, in the evenings you will find some time to enjoy the hospitality of the Hungarian people and visit some of our iconic places.

It is our sincere hope that the ISFNT-14 will provide you with an opportunity to share your recent achievements in the field, create new contacts and initiate new collaborations.

Finally, let us wish you a successful ISFNT-14 in Budapest and hope that you will have a memorable time in this wonderful city.

Yours sincerely,

Gabor Veres

Head of Department of Plasma Physics,
Wigner Research Centre for Physics
General Chairman of ISFNT-14



*Industrial and R&D
Exhibition is available
during the whole
Symposium in the
exhibition area*

Arrival and warming-up

Larus Event Centre



Registration, check-in

16:00-20:00



Welcome reception (included)

19:00-21:00

For assistance,
please find our
colleagues in the
registration desk
(available during
the official hours
of the whole
Symposium)

Keynote Presentations:

45 min. (40 min + 5 min Q&A) per each

Plenary Presentations:

35 min. (30 min + 5 min Q&A) per each

Invited Oral Presentations:

30 min. (25 min + 5 min Q&A) per each

Contributed Oral Presentations:

20 min. (15 min + 5 min Q&A) per each

morning

Monday, 23rd September

8:00-

Registration, check-in



Plenary keynote session I.

Pátria Hall

Seungyong Cho, Lorenzo Boccaccini

chairs

9:00-9:25

Opening



9:25-10:10

Bernard Bigot

Status of the ITER Project: Challenges and Opportunities

KN-1

10:10-10:55

Antonius Donné

The European Fusion Roadmap

KN-2

10:55-11:25

Coffee break



11:25-12:10

Mohamed Abdou

Lessons Learned from 40 years of Fusion Research and Future Directions
for Fusion Nuclear Science and Technology R&D

KN-3

12:10-14:00

Lunch break



Please check your presentation schedule and session code on the website. Invited oral presentation may come first in each oral session. The order of presenters is able to be changed when one of the presenters of your session does not attend the symposium. It is important that you arrive at your session room at least 10 minutes before the start of session to make sure that everything prepares for your presentation.

Parallel session 01-1.

Pátria Hall

Parallel session 01-2.

Bartók Hall

Parallel session 01-3.

Lehár Hall

chairs

Italo Ricapito
Massimo Zucchetti

chair

Christian Bachmann

chair

Angel Ibarra

01-1.1
14:00-14:30

Laurent Forest
Test Blanket Modules (ITER) and
Breeding Blanket (DEMO):
History of Major Fabrication
Technologies Development of
HCLL and HCPB and Status

01-2.1
14:00-14:30

Francesco Maviglia
Impact of Plasma Thermal
Transients on the Design of
the EU DEMO

01-3.1
14:00-14:30

Minh Quang Tran
Heating and Current Drive
Systems for DEMO

01-1.2
14:30-15:00

Xiaoyu Wang
Development Status of
Helium Cooled Ceramic
Breeder Tritium Breeding
Blanket in China

01-2.2
14:30-15:00

Sungjin Kwon
Recent Progress in the Design
of the K-DEMO Divertor

01-3.2
14:30-15:00

Ursel Fantz
Achievement of the ITER NBI Ion
Source Parameters for
Hydrogen at the Test Facility
ELISE and Present Status for
Deuterium

01-1.3
15:00-15:20

Hyoseong Gwon
Nuclear Responses of WCCB
TBM with Different Container
Designs

01-2.3
15:00-15:20

Richard E. Nygren
US Enabling Technology for
Fusion

01-3.3
15:00-15:20

Arnold Lumsdaine
Testing and Analysis of Steady-
State Helicon Antenna Plasma
Source for the Material Plasma
Exposure eXperiment (MPEx)

01-1.4
15:20-15:40

Sunghwan Yun
Conceptual Design and Analysis
of the HCCR Breeding Blanket
for K-DEMO with Newly
Adopted Multiple Enrichment
Breeder

01-2.4
15:20-15:40

Carine van Hille
The Design of the Divertor
Remote Handling System for
ITER

01-3.4
15:20-15:50

Ming-Jiu Ni
Modeling for MHD Issues
Related to Liquid Metal Fusion
Divertor and Blanket



Coffee break

15:50-16:30

P1

Poster session 1

chair: Elena Gaio

16:30-18:30



Organ concert St. Stephen's Basilica (included)

19:30-20:00

morning

Tuesday, 24th September

8:00-

Registration, check-in



Plenary session II.

Pátia Hall

Delong Luo

chair

9:00-9:35

Yican Wu

Overview of Fusion Nuclear Technologies in China

PL-1

9:35-10:10

Yuji Hatano

Overview of Japan-US Project PHENIX: Technological Assessment of He-Cooled Divertor with Tungsten for DEMO Reactors

PL-2

10:10-10:40

Coffee break



Parallel session O2-1.

Pátia Hall

chairs

Lorenzo Malerba
Rosaria Villari

O2-1.1
10:40-11:10

Juro Yagi

The Frontier Investigations of the Liquid Breeders Using Oroshhi-2 Heat and Mass Transfer Loop

O2-1.2
11:10-11:40

Andrey Leshukov

Overview of Russian Activity on ITER Blanket Procurement Arrangement

O2-1.3
11:40-12:10

Tsuyoshi Hoshino

Lithium-6 Enrichment Technology using Innovative Electrolysis with Lithium Ionic Conductor

O2-1.4
12:10-12:40

Arnold Lumsdaine

Perspectives on the FESAC Transformative Enabling Capabilities: Priorities, Plans and Status

Parallel session O2-2.

Bartók Hall

chairs

Zhibin Chen
Richard E. Nygren

O2-2.1
10:40-11:00

Xueming Shi

Neutronic Conceptual Research on a Hybrid Blanket of China Fusion Engineering Test Reactor

O2-2.2
11:00-11:20

Viacheslav P. Budaev

High-heat Flux Tests of Fusion Materials with Stationary Plasma in the PLM Device

O2-2.3
11:20-11:40

Jeong-Ha You

Status of Preconceptual Design and Technology R&D for the EU DEMO Divertor

O2-2.4
11:40-12:00

Zsolt Vizvary

European DEMO First Wall Shaping and Limiters Design and Analysis Status

Parallel session O2-3.

Lehár Hall

chair

Jeong-Ha You

O2-3.1
10:40-11:10

Michael Gorley

The EUROfusion Materials Property Handbook for DEMO In-vessel Components – Status and the Challenge to Improve Confidence Level for Engineering Data

O2-3.2
11:10-11:40

Richard Kurtz

Design of Fracture Resistant Tungsten Composites for High Heat Flux Applications

O2-3.3
11:40-12:10

Keitaro Kondo

Validation of the Linear IFMIF Prototype Accelerator (LIPAc) in Rokkasho

O2-3.4
12:10-12:40

Qunying Huang

CLAM-ODS Steel as Structural Material Beyond ITER

12:40-14:20

Lunch break



Parallel session 02-1.

Pátria Hall, ctnd.

Parallel session 02-3.

Bartók Hall (!), ctnd.

Lehár Hall

chairs

Ursel Fantz
Francesco Maviglia

chair

Sungjin Kwon

02-1.5
14:20-14:40

Thierry Lebarbé

Standardization of Eurofer
Material, a First Step toward
Industrialization

02-3.5
14:20-14:40

Guangming Ran

The CFETR Tritium Plant:
Requirements and Design
Progress

02-1.6
14:40-15:00

Hiroyasu Tanigawa

Current Status and Technical
Issues of Welding and Joining
Technologies of Reduced
Activation Ferritic/Martensitic
Steel F82H

02-3.6
14:40-15:00

Yannick Hörstensmeyer

Optimization of the EU-DEMO
Fuel Cycle using Dynamic
Modelling

02-1.7
15:00-15:20

Stuart I. Muldrew

System Studies of Spherical
Tokamaks

02-3.7
15:00-15:20

Deli Luo

Progress of China's TBM
Tritium Technology

02-1.8
15:20-15:40

Ryoji Hiwatari

Basic Concept and Strategy of
Japan's Fusion Demonstration
Plant : JA DEMO



Coffee break

15:40-16:15

P2

Poster session 2

chairs: Andrey Leshukov, Arnold Lumsdaine

16:15-18:15



River cruise & dinner (optional)

Price: 65 EUR/person
further information on the page 13

19:30-22:00

morning

Wednesday, 25th September

8:00-

Registration, check-in



Plenary session III. Pátria Hall

Alice Ying, Mu-Young Ahn

chairs

9:00-9:35

Luciano Giancarli

PL-3

Overview of Recent ITER TBM Program Activities

9:35-10:10

Italo Ricapito

PL-4

European TBM Programme: First Elements of RoX and Technical Performance Assessment for DEMO Breeding Blankets

10:10-10:40

Coffee break



Parallel session 03-1. Pátria Hall

Parallel session 03-2. Bartók Hall

Parallel session 03-3. Lehár Hall

chairs

Xiaoyu Wang
Tonio Pinna

03-1.1
10:40-11:10

Gandolfo Alessandro Spagnuolo
Progress of the Conceptual Design of the European DEMO Breeding Blanket, Tritium Extraction and Coolant Purification Systems

03-1.2
11:10-11:40

David Rapisarda
Tritium Extraction from PbLi: Technologies and Progresses

03-1.3
11:40-12:00

Youji Someya
Conceptual Design for Higher Capability of the Tritium Production by the Honeycomb Structure Blanket of JA DEMO

03-1.4
12:00-12:30

Rosaria Villari
Nuclear Design of Divertor Tokamak Test (DTT) Facility

03-1.5
12:30-13:00

Chrsitian Bachmann
Key Design Integration Issues Addressed in the EU DEMO Pre-concept Design Phase

chairs

Junichi Miyazawa
Yannick Horstensmeyer

03-2.1
10:40-11:10

Yoshinori Kawamura
Progress of Water Cooled Ceramic Breeder Test Blanket Module System

03-2.2
11:10-11:30

Mariano Tarantino
Fusion Technologies Development at ENEA Brasimone Research Centre: Status and Perspectives

03-2.3
11:30-11:50

Ulrich Fischer
Required and Achievable TBR for the European DEMO

03-2.4
11:50-12:20

Alice Ying
Recent Advances in Tritium Modeling and Impacts on Tritium Management for Outer Fuel Cycle

03-2.5
12:20-12:50

Alessia Santucci
The Issue of Tritium in DEMO Coolant and Mitigation Strategies

chairs

Pengcheng Long
Deli Luo

03-3.1
10:40-11:10

Hidetoshi Hashizume
Introduction of Fusion Reactor as Transmutation System for Minor Actinides and Fission Product

03-3.2
11:10-11:40

Patrick Calderoni
Recent Advances in Nuclear Instrumentation and their Application to Fusion Blankets

03-3.3
11:40-12:10

Xiang Chen
Advanced Structural Steels for the Fusion Blanket: Alloy Development, Irradiation Effects and Characterization at ORNL

03-3.4
12:10-12:40

Elena Gaio
The DEMO Plant Electrical System: Issues and Perspective

03-3.5
12:40-13:10

Brad Merrill
Ongoing Activities and Future Directions for the U. S. Fusion Safety Program



Lunch break

12:50-14:30



Social tours (optional)

14:30-19:30



Budapest sightseeing by bus

Length of the event: 4 hours

Ticket price includes:

- bus transportation from the conference venue and back after the programme
- guided tour in English
- entrance ticket to the Matthias Church
- entrance ticket to the Fishermen's Bastion
- cake and coffee in a cafeteria

Price: 40 EUR

Tentative arrival back to Novotel Budapest City at around 18:00.



Visegrád Royal Palace, Solomon Tower and medieval tournament

Length of the event: 6 hours

Ticket price includes:

- bus transportation from the conference venue and back after the programme
- guided tour in the Royal Palace of Visegrád
- visit of Solomon Tower
- wine and freshly baked salted cookies in the Tower
- medieval knights' tournament
- opportunity to try some of the medieval weapons
- royal feast with delicious meals and wines

Price: 80 EUR

Tentative arrival back to Novotel Budapest City at around 20:00.

morning

Thursday, 26th September

9:00-

Registration, check-in



Plenary session IV.

Pátria Hall

Luciano Giancarli, Yuji Hatano

chairs

9:00-9:35

Juergen Rapp

The Material Plasma Exposure eXperiment: Mission and Conceptual Design

PL-5

9:35-10:10

Mattia Siccinio

DEMO Physics Challenges beyond ITER

PL-6

10:10-10:50

Coffee break



Parallel session 04-1.

Pátria Hall

chairs

04-1.1

10:50-11:20

Qunying Huang
Tsuyoshi Hoshino

Pengcheng Long

Integrative Neutronics
Simulation of SuperMC for
Reactors Design

04-1.2

11:20-11:50

Yongfeng Wang

Neutronics Experiments for
Advanced Nuclear Systems at
HINEG Facility

04-1.3

11:50-12:10

Jae-Hwan Kim

Compatibility of Advanced
Tritium Breeders and
Neutron Multipliers

Parallel session 04-2.

Bartók Hall

chair

04-2.1

10:50-11:10

Keitaro Kondo

Massimo Zucchetti

ARC Reactor: Radioactive
Safety Assessment and
Preliminary Environmental
Impact Study

04-2.2

11:10-11:30

Nakamura Makoto

Safety Requirements and
Design Strategy for Advanced
Fusion Neutron Source A-FNS

04-2.3

11:30-11:50

Paul Humrickhouse

Initial Development of
MELCOR 2.2 for Fusion

Parallel session 04-3.

Lehár Hall

chairs

04-3.1

10:50-11:20

Juergen Rapp
Richard Kurtz

Francisco Martin-Fuertes

Overview of IFMIF-DONES
Project

04-3.2

11:20-11:50

Lorenzo Malerba

On the Role of Integrated
Computer Modelling in Fusion
Technology

04-3.3

11:50-12:10

Aldo A. Fierro

Conceptual Design of a
Breeding Blanket for Laser
Fusion Power Plants with
Tunable Tritium Breeding Ratio
(TBR) Capabilities

12:10-13:40

Lunch break



Parallel session 04-1. Pátia Hall, ctnd.		Parallel session 04-2. Bartók Hall, ctnd.		Parallel session 04-3. Lehár Hall, ctnd.	
chairs	Ulrich Fischer Paul Humrickhouse	chairs	Minh Quang Tran Alessia Santucci	chair	Brad Merrill
04-1.4 13:40-14:10	Junichi Miyazawa R&D Strategy Including DT Neutron Irradiation Tests of In- vessel Components by the Year- long Operation in the Helical Fusion Reactor FFHR-b1	04-2.4 13:40-14:00	Peter Thomas Lang Optimizing the EU-DEMO Pellet Fuelling Scheme	04-3.4 13:40-14:00	Tristan Tremethick Service Joining Strategy for the EU DEMO
04-1.5 14:10-14:40	Pengcheng Long AI Nuclear Design and Safety Simulation System Coupling with SuperMC	04-2.5 14:00-14:30	Amit Sircar Study and Characterization of Potential Adsorbent Materials for the Design of the Hydrogen Isotopes Extraction and Analysis System	04-3.5 14:00-14:20	Volker Rohde Recovery from a Hot Water Leakage at the Tokamak ASDEX Upgrade
04-1.6 14:40-15:10	Jie Yu Development of GDT Based Fusion Neutron Source CVNS	04-2.6 14:30-15:00	Wenhua Luo R&D of Tritium Technology for CFETRprogress and Prospect	04-3.6 14:20-14:40	Guy Burroughes Automated Maintenance in Fusion Power Plants
04-1.7 15:10-15:40	Tonio Pinna Approach on Improving Reliability of DEMO Technical Solutions	04-2.7 15:00-15:30	Mu-Young Ahn Study on Hydrogen Adsorption and Desorption using Large-scale Cryogenic Molecular Sieve Bed	04-3.7 14:40-15:00	Yuri V. Mikhailov Pulsed Neutron Sources Based on Plasma Focus Chambers



Coffee break

15:30-16:00

P3

Poster session 3

chairs: Sandor Zoletnik, Hiroyasu Tanigawa

16:00-18:00



Banquet – Place: Varkert Bazaar (included)

19:30-24:00

Plenary session V.
Pátria Hall

Yican Wu, Xueming Shi

chairs

9:00-9:45

Delong Luo
Chinese ITER Project Overview—Status & Progress

KN-4

9:45-10:20

Nobuyuki Asakura
Recent Developments of Plasma Exhaust and Divertor Design for Tokamak DEMO Reactors

PL-7

10:00

10:20-10:45

Coffee break



**Privately-Funded
Fusion Research**
Pátria Hall

Bartók Hall

Lehár Hall

chairs

Mohamed Abdou
Gabor Veres

IC-1

10:45-11:30

Dennis Whyte
SPARC and ARC: A Compact,
High-field Pathway to Fusion
Energy

IC-2

11:30-12:15

Michl W. Binderbauer
Unlocking Fusion Energy
through Advanced Beam-
Driven FRCs

12:15-12:45

Closing



In case you leave this day, please do not forget to check-out your room.



River cruise & dinner Tuesday, 24th September

Budapest at night is a whole shiny new side to the 'Pearl on the Danube'. Spend an enjoyable 2.5 hours on a Danube River cruise, sailing between the Buda and Pest sides of magical Budapest. See the top sights of Budapest on an evening cruise and enjoy a delicious dinner and the taste of the Hungarian wines on board.

Flowing through the heart of Budapest, the Danube is the lifeline of the Hungarian capital, as well as its geographic centre, separating the hilly Buda district on the west bank from the bustling Pest on the east bank. The striking waterfront is also part of Budapest's UNESCO World Heritage-listed treasures, home to landmarks such as the Széchenyi Chain Bridge, the Liberty Bridge, Buda Castle Hill, Matthias Church, the Hungarian Parliament Building, and Margaret Island.

Organised transportation from the conference venue and back after the programme is included in the price.

Price: 65 EUR/person

P1-001 Ugo Bonavolontà

European DEMO Divertor Cassette: Study of an Alternative Path of the Cooling Pipes inside the Cassette Body Considering Piping Manufacturing Assessment

Delphine Bossu P1-002

Manufacture of an ITER Full Scale First Wall Panel Prototype

P1-003 Zhang Chen

The Simulation of the Quasi-snowflake Divertor Configuration with the EAST New Upgrade Lower Tungsten Divertor Shape

Mauro Dalla Palma P1-004

Design of the RFX-mod2 First Wall

P1-005 Pietro Alessandro Di Maio

On the Numerical Assessment of the Thermal-hydraulic Operating Map of the DEMO Divertor Plasma Facing Components Cooling Circuit

Hai Xie P1-006

Plasma-facing Components Damage and Its Effects on Plasma Performance in EAST Tokamak

P1-007 Stefan Elgeti

W Enrichment by Preferential Sputtering of EUROFER 97 as Actively Cooled Target

Mehdi Firdaouss P1-008

Design and Manufacturing of Bulk Tungsten Tiles for WEST Outer Limiter

P1-009 Thomas Franke

The EU DEMO Equatorial Outboard Limiter – Design and Port Integration Concept

Domenico Marzullo P1-010

Structural Analysis on EU-DEMO Divertor Cassette Attachments Subjected to Thermal and Electric-magnetic Loads

P1-011 Marc Missirlian

Development and High-heat-flux Test Results of a DEMO Divertor Target Concept with a Thick Graded Bond Interlayer

Pierre Gavila P1-012

Status of the ITER Divertor IVT Procurement

P1-013 Laurent Guerrini

Fabrication of ITER Divertor Cassette Body Prototypes

Juri Igitkhanov P1-014

The Runaway Electron Evolution in the DEMO Reactor Plasmas

P1-015 Daniel Iglesias

Divertor Design and Integration Activities for the High-field ST40 Spherical Tokamak

Ryota Imazawa P1-016

Thermal and Structural Analyses of Retro-reflectors of ITER Poloidal Polarimeter that are Mounted on First Wall Panels

P1-017 Vito Imbriani

Insulated Fixation System of Plasma Facing Components to the Divertor Cassette in EuroFusion-DEMO

Hideki Ito P1-018

Hydrogen Permeation Behavior Through Tungsten Deposition Layer

Monday, Poster session 1

16:30 – 18:30

Chair: Elena Gaio

P1-019 Petra Jenus

W2C-Reinforced Tungsten: A Promising Candidate for High-Heat-Flux Material

Minyou Ye P1-020

Simulation Study of Evolution of Plasma-related Defects in Tungsten

P1-021 Jihwan Lim

Experimental Study of Hypervapotron and Cylindrical Channel for Divertor Cooling by One-side, Electric Joule Heating System

Felix Klein P1-022

Improved Safety for DEMO by Advanced Tungsten Alloys as First Wall Armor

P1-023 Igor Kupriyanov

Surface Damage of Beryllium Armor Materials under Extreme Plasma Heat Loads

Sun Eui Lee P1-024

Tritium Distribution Analysis on Be Limiter Tiles from JET-ITER Like Wall Campaigns using Imaging Plate Technique and Beta-ray Induced X-ray Spectrometry

P1-025 Andrey Litnovsky

Smart Tungsten-based Alloys for a First Wall of DEMO

Yves Martin P1-026

Substantial Upgrades of the TCV Tokamak for Improved Divertor and Heating Capabilities

P1-027 Domenico Marzullo

Preliminary Engineering Assessment of Alternative Magnetic Divertor Configurations for EU-DEMO

Yuki Matsuda P1-028

In-situ Measurement of Surface Modifications of Tungsten Exposed to Pulsed High Heat Flux for Divertor Design in Tokamak-type Fusion Nuclear Reactors

P1-029 Giuseppe Mazzone

EuroFusion-DEMO Divertor – Cassette Design and Integration

Triestino Minniti P1-030

Neutron Tomography of “Thermal Break” Divertor Mock-ups before and after High Heat Flux Exposure

P1-031 Alessandro Moro

Design of Electron Cyclotron Resonance Heating Protection Components for First Plasma Operations in ITER

Rudolf Neu P1-032

Behaviour of Actively Cooled ITER Divertor Mock-ups in High Power ASDEX Upgrade Discharges

P1-033 Heiko Neuberger

Manufacturing of a HCPB First Wall Demonstrator Using the Additive Manufacturing Process of Metal Powder Application

Simone Noce P1-034

Nuclear Analyses for the Design of the Plasma Facing Components of the DEMO Divertor

P1-035 Takeru Ohgo

Plasma Irradiation Experiment on the Metal Pebble Flow in the TPD Sheet-U

Eo Hwak Lee P1-036

Study on Feasibility of Steady-state Assumption for HCCR-TBM under Transient Thermal Load

P1-037 Vincenzo Pericoli Ridolfini

Survey of the Behaviour of Liquid Metals Targets, Sn and Li, in Reactor Relevant Conditions. DEMO and I-DTT

P1-039 Jan Prokůpek

Progress in Commissioning of the HELCZA High Heat Flux Test Facility for ITER First Wall Panel Tests

P1-041 Selanna Roccella

Ultrasonic Test Results Comparison before and after High Heat Flux Testing on W-monoblock Mock-ups Vertical Target for EU-DEMO

P1-043 Fabio Subba

Engineering Analysis of the Hot-spots due to Runaway Electrons in the EU-DEMO Tungsten Divertor

P1-045 Toshikio Takimoto

Deuterium Retention in the Tungsten Irradiated Detached Plasma

P1-047 Sergey Tomilov

Implementation of the FSP Pipe Option Design into Non-standard FW Panel

P1-049 Andrey Ushakov

ITER VSRS First Mirror Plasma Cleaning in RF Gas Discharge – Circuit Design and Plasma Effects

P1-051 Eugenio Vallone

On the Thermal-hydraulic Performances of the DEMO Divertor Cassette Body Cooling Circuit Equipped with a Liner

P1-053 Zhongwei Wang

Thermal and Mechanical Analyses of W7-X Plasma Facing Components for Operation Phase 2

P1-055 Tian Xie

3D Modelling of the Toroidally-localized Lithium Powder Injection Experiments on EAST with EMC3-EIRENE

Sergey Pestchanyi P1-038

TOKES Simulations of Mitigated Disruption Thermal Quenches in ITER

Maria Lorena Richiusa P1-040

DEMO Single Module Segment Concept First Wall and Limiter Misalignment Study by 3D Field Line Tracing

Yuzhong Zhang P1-042

Research on the Normal Spectral Band Emissivity Characteristic within 7.5 to 13 μ m for Graphite between 100 and 500 °C

Maxim Sviridenko P1-044

Analysis of Enhanced Heat Flux First Wall Behavior under ITER Pulsed Loads

Charly Talatizi P1-046

Inverse Radiation Problem with Infrared Images to Monitor Plasma-Facing Components Temperature in Metallic Fusion Devices

Matthieu Toussaint P1-048

Beam Duct for the 1 MW Neutral Beam Injector on TCV

Ladislav Vála P1-050

High Heat Flux Tests of Divertor Mock-ups at the HELCZA Facility for the EUROfusion DIVERTOR Project

Alexey Vertkov P1-052

An Alternative Design Concept of DEMO Relevant Liquid Lithium Divertor Target Based on Capillary Structures

Pinghuai Wang P1-054

Microstructure Characterization of the Key Material Interfaces in ITER First Wall Components

Juancheng Yang P1-056

Magnetohydrodynamic Effect of Multilayer Liquid Metal Film Flow on the Inclined Surface

Monday, Poster session 1

16:30 – 18:30

Chair: Elena Gaio

P1-057 Kuo Zhang

Fracture Mechanical Analysis of Tungsten/Tungsten-copper-Composite Plasma-facing Component for High-heat-flux Divertor Target

Jizhong Sun P1-058

Molecular Dynamics Simulation Study of the Interaction between Energetic Incident D-species with Rough Tungsten Surface

P1-059 Shuhei Nogami

Laminated Composites Using Potassium Doped Tungsten

Erika Akahoshi P1-060

Corrosion Behavior of Multi-layer Ceramic Coatings in Liquid Lithium-lead

P1-061 Julien Aubert

Design and Preliminary Analyses of the New Water Cooled Lithium Lead TBM for ITER

Serena Bassini P1-062

Long-term Corrosion Behavior of EUROFER RAMF Steel in Static Liquid Pb-16Li at 550°C

P1-063 Gaetano Bongiovi

Advancements in the HELIAS 5-B Breeding Blanket Structural Analysis

Rémi Boullon P1-064

Development of a WCLL DEMO First Wall Design Module in the SYCOMORE System Code Interfaced with the Neutronic One

P1-065 Hans-Jörg Brinkmann

Experimental Investigation of Liquid Metal MHD Flow Entering a Flow Channel Insert

Luigi Candido P1-066

An Integrated Hydrogen Isotopes Transport Model for the TRIEX-II Facility

P1-067 Ilenia Catanzaro

Parametric Study of the Influence of Double-walled Tubes Layout on the DEMO WCLL Breeding Blanket Thermal Performances

Vladimir Chakin P1-068

Damage of Titanium Beryllide under High-dose Neutron Irradiation

P1-069 Long Chen

Simulations Toward the Ultimate Parameter of Liquid Metal Fusion Blanket, Part I: High Hartmann Number MHD Flow

Takumi Chikada P1-070

Compatibility of Tritium Permeation Barrier Coatings with Ceramic Breeder Pebbles

P1-071 Pierluigi Chiovaro

Investigation of the DEMO WCLL Breeding Blanket Cooling Water Activation

Ion Cristescu P1-072

Developments on the Tritium Extraction and Recovery System for HCPB

P1-073 Zhi Chen

Control System Design for the Primary Loop of CFETR WCCB

Gheorghe Pasca P1-074

Design Features of the RMSB for Tritium Recovery as Tritiated Water from Helium Purge Loop of the TER HCPBD

P1-075 Francesco Edemetti

On the Impact of the Heat Transfer Modelling Approach
on the Prediction of DEMO WCLL Breeding Blanket
Thermal Performances

Riho Endoh P1-076

Deuterium Permeation Behavior through
Yttria-stabilized Zirconia Coating Fabricated by
Magnetron Sputtering

P1-077 Iván Fernández-Berceruelo

Remarks on the Performance of the EU DCLL Breeding
Blanket Adapted to DEMO 2017

Ruggero Forte P1-078

Preliminary Design of the Cap Regions of DEMO Water-
Cooled Lithium Lead Breeding Blanket Segments

P1-079 Ramil Gaisin

Industrial-scale Manufacturing Experience of Titanium
Beryllide Block for DEMO Blanket Application

Maria Gonzalez P1-080

Electric Resistivity Behavior of Alumina
Flow Channel Inserts in PbLi

P1-081 Wenhai Guan

Evaluation on Electromagnetic Analysis
of Cylindrical WCCB TBM

Jiajia Han P1-082

Influence of Heat Transfer on Tritium Transport in
Liquid Metal Blankets at High Hartmann Number

P1-083 Francisco Hernández-González

Consolidated Design of the HCPB Breeding Blanket for
the pre-Conceptual Design Activities of the EU DEMO
and Harmonization with the ITER HCPB TBM Program

Julia M. Heuser P1-084

Survey on Lithium 6
Availability and
Enrichment Strategies

P1-085 Karel Samec

Preparation of Irradiation Rig for Test
of Al_2O_3 Coatings in Contact
with Liquid PbLi

Sawoong Kim P1-086

Effect of Post Weld Heat Treatment on Mechanical
Properties of Gas Tungsten Arc Welded
316L(N)-IG (X2CrNiMo 17-12-2) Stainless Steel

P1-087 Viktor Klüber

Numerical Simulation of 3D Magnetohydrodynamic
Liquid Metal Flow in a Spatially
Varying Solenoidal Magnetic Field

Satoshi Konishi P1-088

Experimental Validation of Tritium
Recovery System from Liquid LiPb
by Vacuum Sieve Tray Concept

P1-089 Michal Kordač

Modeling of PbLi
Purification from
Volatile Contaminants

Wolfgang Krauss P1-090

Qualification of Al-based Coatings Processed by
ECX-Process for Application as Corrosion
and T-Permeation Barriers

P1-091 Eo Hwak Lee

Performance Test of the Key Components for
the HCCR Breeding Blanket Cooling System
and the Validation of the GAMMA-FR code

Youngmin Lee P1-092

Numerical Investigation of Purge Gas Flow through
Binary-Sized Pebble Beds Using Discrete Element
Method and Computational Fluid Dynamics

Monday, Poster session 1

16:30 – 18:30

Chair: Elena Gaio

P1-093 Oliver Leys

Induced Jet Break-Up Fabrication of Advanced Ceramic Breeder Pebbles

Rosa Lo Frano P1-094

Li_4SiO_4 Pebbles New Fabrication Process: Feasibility and Preliminary Experimental Data

P1-095 Yudong Lu

Benchmark of Serpent-2 with MCNP: Application to EU Fusion DEMO HCPB Breeding Blanket

Ivan Alessio Maione P1-096

Update of Electromagnetic Loads on HCPB Breeding Blanket for DEMO 2017 Configuration

P1-097 Leo Bühler

Three Dimensional Magneto Convective Flows in Geometries Relevant for DCLL Blankets

Yuya Miyoshi P1-098

Effect of Dragged Magnetic Field Lines into RAFM Steel Blanket Modules on First Wall Heat Load

P1-099 Kenji Morita

Computational Search for Superionic Conductors for Efficient Lithium Isotope Separation with the Electrodialysis Technique

Fabio Moro P1-100

Nuclear Analysis of the Water Cooled Lithium Lead DEMO Reactor

P1-101 Ivo Moscato

Assessment of the Dose Rates due to Water Activation on an Isolation Valve of the DEMO WCLL Breeding Blanket Primary Heat Transfer System

Keisuke Mukai P1-102

Neutronics Experiment with a Blanket Mock-up using a DD Fusion Neutron Source

P1-103 CHANGE!

Moved to Poster session 3. (P3-135)

Yasuyuki Ogino P1-104

Measurement of Neutron fluence with Removal of X-/γ-ray Effect from Neutron Imaging Plate

P1-105 Keiji Oishi

Compatibility between Fusion Reactor Blanket Structure Material F82H and Solid Breeder Lithium Oxide

Tomohiro Okada P1-106

Fundamental Analysis for Electrochemical Extraction and Monitoring of Coexisting Impurities in Lead Lithium using Chloride Molten Salt

P1-107 Fumito Okino

Emissivity Measurement of PbLi Droplet in a Vacuum for the Heat Recovery by Radiation

Yasuhisa Oya P1-108

Hydrogen Isotope Exchange at the Surface of C-W mixed Material Layer on Tungsten by Gas Exposure

P1-109 Byungil Park

Construction of the Hot Helium Leak Test Facility for the ITER Blanket Shield Block

Pavel Pereslavl'tsev P1-110

Analyses of the Shielding Options for HCPB DEMO Blanket

P1-111 Ivan Poddubnyi

Strength Analysis and Impact Test of Stub Key Pads
of ITER Blanket

Shinichi Satake P1-112

Turbulent Heat Transfer for Coolant Water Flow in
Plasma Facing Component

P1-113 Satoshi Sato

Overview of Test Modules for Advanced Fusion
Neutron Source A-FNS

Chang Wook Shin P1-114

Design and Experimental Study of Adsorption Bed for
the Helium Coolant Purification System

P1-115 Hiroki Shishido

Experimental Evaluation of the Dynamic
Viscosity of Molten Salt Fluoride and Validation
of the Polarizable Ion Model

Simone Siriano P1-116

MHD Forced Convection Flow
in Dielectric and Electro-conductive
Rectangular Annuli

P1-117 Simone Siriano

Electromagnetic Coupling Phenomena
in Co-axial Rectangular Channels

Gandolfo Alessandro Spagnuolo P1-118

Development of Load Specifications for the Design
of the Breeding Blanket System

P1-119 Dionisio Di Giulio

Analysis of Flow Channel Insert Deformations
Influence on the Liquid Metal Flow
in DCLL Blanket Channels

Gergő I. Pokol P1-120

Development of Secondary Charged Particle Activation
based Method for Tritium Production Rate
Measurement in Fusion Blankets

P1-121 Teruya Tanaka

Applicability Study of Blanket Systems with Liquid
Tritium Breeder/Coolant and Liquid Neutron Multiplier
in Helical Reactor FFHR Designs

Alessandro Tassone P1-122

MHD Pressure Drop
Estimate for the WCLL
In-vessel PbLi Loop

P1-123 Raffaella Testoni

Magnetohydrodynamics Effect on Tritium Transport
at Breeder Unit Level for the WCLL
Breeding Blanket of DEMO

Minh Quang Tran P1-124

Megawatt Power Generation of the
Dual-frequency Gyrotron for TCV at 84 and
126 GHz, in Long Pulses

P1-125 Alessandro Venturini

Experimental Qualification of New Instrumentation for
Lead-Lithium Eutectic in IELLLO Facility

Wanjing Wang P1-126

Progress of WCCB Manufacture
Technology at ASIIPP

P1-127 He Wang

Study of Hydrodynamics and Thermal Transfer
in Duct with 180° Sharp Bend in Lead-Lithium
Liquid Metal Blankets

Gaku Yamazaki P1-128

Electrochemical Measurements of Blanket Structural
Materials' Corrosion in HF-containing
Molten FLiNaK Salt

P1-129 Jae Sung Yoon

Fabrication of Small Mock-up and Performance
Verification Tests to Verify E-beam Applicability
to HCCR Blanket

Arturs Zarins P1-130

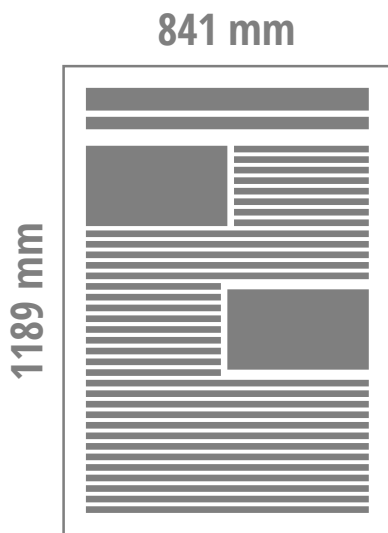
Radiation-induced Defects and Radiolysis Products in 5
MeV Electron-irradiated Lithium Orthosilicate Pebbles
with Various Contents of Lithium Metatitanate

P1-131 Guangming Zhou

Thermal Hydraulics Activities for the Consolidated HCPB
Breeding Blanket of EU DEMO

Poster instructions

- Posters should be affixed and removed by the presenters themselves in time.
- Each poster should be allocated on a poster board corresponding to its poster number.
- Author(s) or presenter(s) are asked to stand at the designated position for discussion of your work.
- **Poster Size:** A0 Size (portrait oriented, 841 mm width x 1189 mm height)
- The poster title, author(s)'s name(s) and affiliation(s) should appear on the top.
- Posters should be affixed to the poster boards using pins or not sticky tape or double-side tape. Our staff will provide supplies on-site.



P2-001 Ali Al Dabbas

Role of Silicate Sorption
by Ankerite in Silicic
Acid Species Solution

Nicolae Bidica P2-002

Pre-Experiment Analysis for Permeation of
Multi-component Hydrogen Isotopes
through Metals in Non-steady-state

P2-003 Chao Chen

Mass Transfer Performance Test
of Structured Packings for Tritiated
Water Distillation Detritiation

Salvatore D'Amico P2-004

Preliminary Thermal-hydraulic Analysis of the EU-DEMO
Helium-Cooled Pebble Bed Fusion Reactor by Using the
RELAP5-3D System Code

P2-005 Tamás Dézsi

Generation and Transport of Activated Corrosion
Products and ^7Be in the Lithium Loop of IFMIF-DONES

Maria Teresa Porfiri P2-006

Exploratory Fire Analysis
in DONES Lithium System

P2-007 Matteo D'Onorio

Sensitivity Analysis for the Hydrogen Production During
an Ex-Vessel LOCA without Plasma Shutdown for the EU
DEMO WCLL Blanket Concept

Matteo D'Onorio P2-008

Preliminary Safety Analysis
of an in-vessel LOCA for the
EU DEMO WCLL Blanket Concept

P2-009 Laura Estévez Núñez

Atmospheric Activation
in the IFMIF-DONES
Accelerator Systems

Antonio Froio P2-010

Numerical Quantification of the Beneficial Effects of
Primary Heat Transfer System Isolation Valves in Case of
In-Vessel Loss-Of-Coolant Accidents for the EU DEMO

P2-011 Stankunas Gediminas

Shut-down Dose Rate Analysis for the Activated Target
Assembly in IFMIF-DONES During Maintenance

Youngseok Lee P2-012

Diamond Fast-Neutron Detector Applied
to the KSTAR Tokamak

P2-013 Rosa Lo Frano

Numerical Analysis of Steam Condensation at
Sub-atmospheric Pressure in Water Suppression Tank

Giovanni Mariano P2-014

Progress in Development of Advanced D1S Dynamic for
Three-dimensional Shutdown Dose Rate Calculations

P2-015 Dobromir Panayotov

Use of Phenomena Identification
and Ranking Tables Technique
in the Fusion Safety Assessment

Alessio Pesetti P2-016

Experimental and Numerical Analysis of
Sub-Atmospheric Steam Condensation in Suppression
Tank with SIMMER IV Code

P2-017 Maria Teresa Porfiri

Safety Assessment for European DEMO – Achievements
and Open Issues in View of a Generic Site Safety Report

Yuefeng Qiu P2-018

Shutdown Dose Rate Calculations for the IFMIF-DONES
Lithium Loop Cell Using Variance Reduction Techniques

P2-019 Rosaria Villari

Ionizing Radiation Monitoring Requirements at the
Divertor Tokamak Test Facility

P2-021 Andrius Tidikas

Activation Analysis of the European DEMO Divertor with
Respect to the Different Breeding Blanket Segmentation

P2-023 Jingyu Zhang

Influence of Different Equivalent Methods of
Pulsed Neutron Irradiation on ACPs Source Term
Calculation in Fusion Reactor

P2-025 Gábor Anda

Development of Li, Na, K, Rb and Cs
Thermionic Ion Sources Using SiC
Block Heater Technology

P2-027 Maurizio Angelone

Measurement of Delayed Neutron Emission from Water
Activated by 14 MeV Neutrons in a FW Mock-up of ITER

P2-029 Örs Asztalos

Application of BES Synthetic Diagnostics
for the Study of SOL Filament Dynamics
on the EAST Tokamak

P2-031 Federica Bonomo

On the Vertical Uniformity
of an ITER-like Large Beam

P2-033 Jesus Castellanos

Design, Manufacturing and Test
of the LIPAc High Energy Beam Transport Line

P2-035 Valter Cocilovo

Analysis of Stress Induced by
Plasma Disruption on Vacuum Vessel
through Multi-physics Modeling

P2-037 Niek den Harder

Beam Formation and
Transport in the BATMAN
Upgrade Test Facility

Toshiharu Takeishi P2-020

Consideration of the Low Contamination Device for the
Measurement of Tritium Release Rate

Dianle Wang P2-022

The Flow Instability Phenomenon in Loss of Coolant
Accident of Water Cooling Blanket

He Zhang P2-024

Consideration on
Defence-in-depth
Applied in CFETR

Fabio Moro P2-026

RAMI Evaluation of the
Beam Source for the DEMO
Neutral Beam Injectors

Frederik Arbeiter P2-028

Taking to Service and First Results of the
Q-PETE/D2 Hydrogen Permeation Setup

Maria-Victoria Bologna P2-030

Parameter Study and Dynamic Simulation of Current
DEMONstration Intermediate Heat Transfer and Storage
System Design via MATLAB/Simulink

Barbara Caiffi P2-032

Nuclear Analyses in Support of the Conceptual Design of
the DTT Tokamak Neutron Diagnostics

Hyun-Kyung Chung P2-034

Virtual DEMO for
Korean Fusion Program

Donghong Liu P2-036

3D SURO Modelling of Beryllium Erosion and
Deposition on Tungsten Rough Surfaces under
ITER-relevant Plasma Conditions

Marica Eboli P2-038

Test Series D Experimental Results for SIMMER
Code Validation of WCLL BB In-box LOCA
in LIFUS5/Mod3 Facility

P2-039 Thomas Emmerich

Thermal Fatigue Tests on Functionally Graded W/EUROFER Layer Systems in a Newly Constructed Testing Apparatus

Thomas Emmerich P2-040

Development Progress of Functionally Graded W/EUROFER Layers for First Wall Components

P2-041 Davide Flammini

Pre-Analysis of the WCLL-mock up Neutronics Experiment at the Frascati Neutron Generator

Nicola Fomesu P2-042

Shutdown Dose Rate Studies for the TT and DTE2 Campaigns at JET

P2-043 Haiying Fu

Development of Small Specimen Test Technologies on Joints of Fusion Structural Materials in SWIP

Francesco Galleni P2-044

RELAP5-SIMMER-III Code Coupling Development of PbLi-Water Interaction

P2-045 Belit Garcinuño

Development of an On-line Sensor for Hydrogen Isotopes Monitoring in Flowing Lithium at DONES

Bruno Gonfiotti P2-046

Application of the Best-Estimate Model Calibration and Prediction through Experimental Data Assimilation Methodology to the Tests Performed on a Helium Cooled First Wall Mock-Up

P2-047 Christian Hopf

Residual Ion Energy Recovery for the DEMO NBI – a Conceptual Design Study

Andrew Hurlbatt P2-048

Improved Characterisation of ITER-Relevant Large Negative Ion Beams through Forward Modelling of Their Diagnostics

P2-049 Samad Khani Moghanaki

The SIMMER-III code validation: Post-test Analysis of Test D1.1 on the LIFUS5/Mod3 facility for In-box LOCA of WCLL-BB

Ivan Kodeli P2-050

Validation of Source Term Descriptions in MCNP and MCUNED Code Models for SINBAD Fusion Benchmark Compilations

P2-051 Boštjan Končar

Analysis of Thermal Response of New Diagnostic Probe in TCV

Davide Laghi P2-052

Understanding and Investigating the Relationships between Geometrical Errors and Lost Particles in MCNP

P2-053 Naoko Ashikawa

Tritium Decontamination Scenario from Plasma Facing Materials under Vacuum Condition in DEMO

Kihyun Lee P2-054

First Neutral Beam Injection Experiments in Versatile Experimental Spherical Torus

P2-055 Yi-Kang Lee

Tripoli-4 Simulation of the FNG Copper Benchmark Experiment and the Tritium Production in the Lithium Diamond Detector for ITER-TBM

Igor Lengar P2-056

Transport Calculations with the JET Torus MCNP Models for Characterization of the Neutron field

Tuesday, Poster session 2

16:15 – 18:15

Chairs: Andrey Leshukov, Arnold Lumsdaine

P2-057 Donghong Liu

First Simulation of Edge Impurity Transport and Divertor Fluxes on HL-2M with EMC3-EIRENE

Donghong Liu P2-058

SURO-FUZZ Modeling of Hydrogen Reflection on Tungsten Nano-structure Surface

P2-059 Donghong Liu

EMC3-EIRENE Modelling of Impacts of the Injected Neon Amount on Heat Flux Deposition on EAST

Victor Lopez Ochoa P2-060

Photon Tally Convergence Acceleration in D1S Calculation

P2-061 Mauro Recchia

Voltage Hold Off Test of the Insulating Supports for the Plasma Grid Mask of SPIDER

Daniele Martelli P2-062

LIFUS II Corrosion Loop Final Design and Screening of an Al- based Diffusion Coating in Stagnant PbLi Environment

P2-063 Domonkos Nagy

Engineering Design of Wendelstein 7-X Alkali Metal Beam Diagnostic Observation System

Chantal Nobs P2-064

Computational Evaluation of N-16 and N-17 Measurements for a 14 MeV Neutron Irradiation of an ITER First Wall Component with Water Circuit

P2-065 Oriol Nomen

Preliminary Design of the HEBT of IFMIF DONES

Sixten Norrman P2-066

Dynamic Modelling of the Helium-cooled DEMO Fusion Power Plant with an Intermediate Loop and Energy Storage System (Indirect Cycle)

P2-067 Sandro Paci

Analysis of the Ingress of Coolant Event Tests Performed in the Upgraded ICE Facility Aimed at the ECART Code Validation

Lee Packer P2-068

Backwards Extrapolation Activation Diagnostics and Their Dynamic Range for Pulsed Neutron Source Measurements

P2-069 Miklós Palánkai

Spirallock Locking Function Tests for the ITER Diagnostics In-Vessel Applications

Raul Pampin P2-070

Estimation of Radiation Conditions in the ITER Electron Cyclotron Upper Launcher with State-of-the-Art Simulation Techniques

P2-071 Mauro Pavei

SPIDER Plasma Grid Masking for Reducing Gas Conductance and Pressure in the Vacuum Vessel

Attila Piros P2-072

Error Handling Method for Digital Twin Based Plasma Radiation Detection

P2-073 Marco Riva

FPGA Implementation of Diamond Detector Data Acquisition System for the ITER Radial Neutron Camera using FlexRIO PCIeexpress Technology: Architecture and First Results

Daniel Sánchez Herranz P2-074

Design and Configurations for the Shielding of the Beam Dump of IFMIF DONES

P2-075 Takuya Saze

Evaluation of the Neutron and Gamma-ray Doses in the LHD Torus Hall and the Basement on the Deuterium Plasma Operation and the Neutral Beam Conditioning

Paloma Matia-Hernando P2-076

Measurements of the Angle-dependent Reflectivity of Plasma-Facing Components and Assessment of the Impact on the Estimations of Coverage of the IWS Measurements of the ITER VV

P2-077 Žiga Štancar

Neutron Detector Response Sensitivity Study for Realistic Plasma Neutron Sources at the JET Tokamak

Sixten Norrman P2-078

Dynamic Modelling of the Helium-cooled DEMO Fusion Power Plant with an Auxiliary Boiler

P2-079 Donghong Liu

SURO-FUZZ Modelling of Tungsten Fuzz Evolution in an Erosive Helium Plasma

Weibin Xi P2-080

Magnet AC Loss and Stability Analysis of EAST in ELM Mode

P2-081 Hai Xie

Numerical Analyses of Impurity Behaviors For CFETR Scenarios of 1GW Fusion Power by the Integrated COREDIV Code

Eiichi Yatsuka P2-082

Gamma-ray Irradiation Effects on Optical Coatings and Polarizers for Edge Thomson Scattering System in ITER

P2-083 Sixten Norrman

Dynamic Modelling of a Solid Energy Storage Concept for Pulsed Operation DEMO Fusion Power Plant (Direct Cycle)

Hailin Zhao P2-084

The Electron Temperature Fluctuation on EAST Tokamak

P2-085 Meng Zhao

CFD Evaluation and Optimization of the HEMJ Divertor Cooling Design

Jinho Bae P2-086

Fabrication of ITER LCTS Assembly Tools and Load Test for Lift Adapter

P2-087 Emily C. Collins

Modelling and Characterisations of Team Dynamics and Human-Robot Interaction in Fusion Remote Maintenance

Zheng Gong P2-088

Preliminary Study and Selection of CFETR In-Vessel Component Tritium Dust Decontamination Method in Hot Cell

P2-089 Stanislao Grazioso

The DTT Device: Preliminary Remote Maintenance Strategy

Min-Su Ha P2-090

Fabrication and Load Test of ITER PF5 & 6 Coil Assembly Tools

P2-091 Emil Jonasson

Improved Reconstruction and Anomaly Detection in JET Using LIDAR-Vision Fusion

Keelan Keogh P2-092

Remote Handling Strategy and Prototype Tooling of the ITER Vacuum Vessel Pressure Suppression System Bleed Line Valve Assembly and Rupture Disk Assembly

Tuesday, Poster session 2

16:15 – 18:15

Chairs: Andrey Leshukov, Arnold Lumsdaine

P2-093 Kyoungoo Nam

Fabrication and Factory Acceptance Test of ITER UPSE Installation Tool

Yuto Noguchi P2-094

Development of Remote Bolt Tightening Tool for ITER First Wall Central Bolt

P2-095 Luigi Pangione

A Taxonomic Approach to Failure Mode Analysis for Use in Predictive Condition Monitoring

Makiko Saito P2-096

Study of Decontamination and Maintenance for ITER Blanket Remote Handling System

P2-097 Robert Skilton

Visual Anomaly Detection in Tokamak Components Using Generative Adversarial Networks

Yingsong Zhao P2-098

A New Array Eddy Current Probe for Inspection of Small-diameter Tubes in Tokamak Fusion Nuclear Devices

P2-099 Huapeng Wu

Progress of Design and Analysis of Divertor Remote Maintenance System for CFETR

Maryna Chernyshova P2-100

Functioning of GEM Based Detector for Poloidal Tomography Under Plasma Radiation Requirements

P2-101 Dániel Dunai

Utilizing Silicon Photomultiplier Detectors for Low Light Level High Frequency Measurements in Fusion Diagnostics

Slavomir Entler P2-102

Temperature Dependence of the Hall Coefficient of Sensing Layer Materials Considered for DEMO Hall Sensors

P2-103 Saul Garavaglia

EU DEMO EC Equatorial Launcher Pre-conceptual Performance Studies

Samo Gerksic P2-104

Stabilization of Resistive Wall Modes for ITER Using Model Predictive Control

P2-105 Keito Hanai

Design of High Current Cesium-free Negative Ion Source by Sheet Plasma

Masao Ishikawa P2-106

Detail Design of In-Vessel Components of ITER Neutron Flux Monitor Equipped with Microfission Chambers

P2-107 Irena Ivanova-Stanik

Analysis of the Influence of the Different Impurity Seeding on the Burn-up Fraction and Plasma Confinement in the EU DEMO Reactor

Karel Kovařík P2-108

Analysis of Transmutation of Candidate Sensitive Layer Materials of Hall Detectors under DEMO Like Neutron Fluxes

P2-109 Ewa Laszynska

Deconvolution of Neutron Spectrum for the DT Neutron Generator Based on a Combination of Activation Method, Unfolding Processes and Numerical Simulations

Paul McNeely P2-110

Commissioning and Initial Operation of the W7-X Neutral Beam Injection Heating System

P2-111 Katarzyna Mikszuta-Michalik

A Total Neutron Yield Constraint Implemented to the RNC Emissivity Reconstruction on ITER Tokamak

SooHwan Park P2-112

Deployment of Multiple Shattered Pellet Injection System in KSTAR

P2-113 Yoshiteru Sakamoto

Progress of Plasma Scenario Modeling for JA DEMO

Haewon Shin P2-114

Automatic Line Identification Algorithm of Impurity Spectra for Real-time Feedback in Fusion Plasmas

P2-115 Tamás Szepesi

Wide-angle Visible Video Diagnostics for JT-60SA Utilizing EDICAM

Hiroyuki Tobari P2-116

Achievement of DC 1 MV Insulation in High-voltage Power Supply for ITER Neutral Beam Test Facility

P2-117 Hiroyasu Utoh

Estimation of Magnetic Error Field with Alleviating Fabrication Tolerance of Large Superconducting Magnets on JA DEMO Reactor

Paul van Eeten P2-118

Organizing Wendelstein 7-X Device Operation

P2-119 Ting Wu

Effect of RMP on Boundary Plasma Turbulence and Transport on J-TEXT Tokamak

Zhensheng Dai P2-120

Propagation and Suppression of Tent-induced Perturbation in ICF Implosion

P2-121 Zhibing He

Gradient Nanoporous Gold: a Potential Inertial Confinement Fusion Hohlraum Wall Material

Yansong Liu P2-122

Progress on Fabrication of High Density Carbon Capsule for ICF Target in LFRC

P2-123 Zhenyuan Xu

Research on the Airflow Distribution in the Laser Beam Transport Tube of the ICF Target Area

Hong Yang P2-124

Numerical Research on Forming a Uniform Ice Fuel Layer in a Cryogenic Capsule

P2-125 Luka Snoj

Analysis of Irradiation Experiments with Activated Water Radiation Source at the JSI TRIGA Research Reactor

Milan Stefanik P2-126

The $p(20)+\text{Be}$ Reaction as a Source of Fusion Relevant Neutrons

P2-127 Jan Stepanek

Parametric Study of S-CO₂ Cycles for the DEMO Fusion Reactor

Jing Zhao P2-128

Minor Actinides Transmutation in a Molten Salt Blanket in the Fusion-Fission Hybrid Reactor Core

P2-129 Andrej Žohar

Analysis of Water Activation in Fusion and Fission Nuclear Facilities

Robert Skilton P2-130

Towards Autonomous Robotic Systems in Nuclear Fusion Plant

Thursday, Poster session 3

16:00 – 18:00

Chairs: Sandor Zoletnik, Hiroyasu Tanigawa

P3-001 Michiko Ahn Furudate

Master Equation Study
of HT Production in Tritium Breeding
Blanket Purge Gas Flow

George Ana P3-002

Construction and Inactive Commissioning of a High
throughput Micro-channel Reactor for Tritiated (Heavy)
Water Production

P3-003 Sergey Ananyev

Development of the DEMO-FNS Hybrid Facility Fuel
System Concept and DT-fueling Systems

CHANGE! P3-004

Moved to Poster session 2.
(P2-053)

P3-005 Katharina Battes

HgLab Karlsruhe – An Infrastructure Facility to Support
the Development of DEMO Vacuum Pumps with
Mercury as Working Fluid

Domenico Valerio P3-006

Design of the EU DEMO
Tritium Extraction System Based on
Permeation Against Vacuum Technology

P3-007 Ciprian Bucur

Investigations Concerning the Influence of the
Catalyst / Package Ratio and the Catalyst Distribution on
the Separation Performances of a LPCE Process

Woo Jun Byeon P3-008

Estimation of Tritium Transport
Parameters in an Advanced Reduced
Activation Alloy

P3-009 Cao Zhi

Study on Deuterium
Permeation through Pure Iron
after Exposed to LiPb

Zhibin Chen P3-010

Tritium Inventory Analysis for Compact Volumetric
Neutron Source (CVNS) by Using Tritium Analysis
Program for Fusion System (TAS)

P3-011 Yuki Edao

Evaluation of Thermal Profile in Catalytic Reactor by
Exothermic Hydrocarbon Feed into Detritiation System

Luca Farina P3-012

Testing of Ceramic Porous Membranes for Separation
of Plasma Enhancement Gases

P3-013 Antonio Frattolillo

Work in Progress on a Novel Approach for Core Fuelling of
DEMO by Injection of High-Speed Pellets
from the High-Field Side

Stefan Hanke P3-014

Progress of the R&D
Programme to Develop a Metal
Foil Pump for DEMO

P3-015 Norihiro Ikemoto

Hydrogen Storage System for
Hydrogen Isotope Separation
Using Gas Chromatograph

Marco Incelli P3-016

Experimental Results of a Medium-Scale
Pd-Ag Permeator for the Tritium Extraction
and Removal System

P3-017 Xiaomei Ji

Development of Low Specific Activity Analyzer
with Proportional Counter

Woochan Jung P3-018

A Study on the Recovery Process
of Hydrogen Isotopes

P3-019 Pil-Kap Jung

Hydrogen Removal Efficiency using Storage-bed
Circulation Process for Helium-3 Collection System

Kazunari Katayama P3-020

Influence of Lithium Mass Transfer on Tritium Behavior
in Pebbles of Li_2TiO_3 with Excess Lithium

P3-021 Min-Kyung Lee

Dynamic Modeling and Simulation of Pellet Injection System in ITER

Jae-Uk Lee P3-022

Simulation and Analysis of Fuel Storage System in Fusion Fuel Cycle Considering Off-normal Heat Loads

P3-023 Peilong Li

Process Design of the Water Detritiation System for China Fusion Engineering Test Reactor

Christian Day P3-024

D/T Separation from He with Superpermeable Membranes: FCC V-alloys as New Membrane Materials

P3-025 Jiangfeng Song

Effect of Ni and Ti Doping on Stability and Hydrogen Absorption Properties of Zr_2Fe Alloy

Xiong Yifu P3-026

Rapid Purification of Hydrogen Isotopes by Helical Tubular Pd-8%Y Alloy Membrane

P3-027 Wei Mao

Density-functional Calculations of Hydrogen Diffusion in Rutile TiO_2 (110)

Kento Miyamae P3-028

Fuel Flow and Stock during Deuterium-Deuterium Start-up of Fusion Reactor

P3-029 Yuri Natori

New Sphere Granulation and Sintering Method of Tritium Breeding Solid-ceramics

Alina Elena Niculescu P3-030

Development of Specific Software for Hydrogen Isotopes Separation by Cryogenic Distillation of ICSI Pilot Plant

P3-031 Yuji Nobuta

Hydrogen Isotope Exchange in Tungsten during Baking in Hydrogen Isotope Atmosphere

Leonardo Noschese P3-032

Tritium Permeation Modeling in DEMO WCLL Cooling System

P3-033 George Ana

Commissioning of the LPCE and Purification Systems as Front-end of the Experimental Pilot Plant for D-T Separation

Wenjing Pu P3-034

Effect of the Oxidation of Polysilane Scintillator on its Fluorescence Properties

P3-035 Stefano Segantin

Optimization of Tritium Breeding Ratio in ARC Reactor

Mikhail Subbotin P3-036

Status Tritium Laboratory of Complex TSP JSC "SRC RF TRINITI" and Tasks of Development Tritium Fuel Cycle under the Ignitor Project Requirements

P3-037 Masahiro Tanaka

Initial Operation Results of Exhaust Detritiation System Using a Polymer Membrane

Silvano Tosti P3-038

Membrane Gas-Liquid Contactor for Tritium Extraction from LiPb

P3-039 Marco Utili

Characterisation of Tritium Extraction Unit from Liquid Pb-16Li Alloy of WCLL-TBM in TRIEX-II Facility

Nikos Vasileiadis P3-040

Uncertainty Analysis of the Computed Pump Throughputs of the ITER Divertor Gas Exhaust System

Thursday, Poster session 3

16:00 – 18:00

Chairs: Sandor Zoletnik, Hiroyasu Tanigawa

P3-041 Axel von der Weth

Experimental Determination of Hydrogen Transport Parameters of 316L Steel in the Two-side Purge Permeation Setup Q-PETE

Tétény Baross P3-042

Diffusion Bonding Experiments of 1.4404 Steels in a Gleeble 3800 Thermomechanical Simulator for Investigation of Non-destructive Inspection Methods

P3-043 Paritosh Chaudhuri

Development, Characterization and R&D Activities on Lithium Ceramic Breeder Materials in India

Pablo Diaz-Rodriguez P3-044

Direct Observation of Hydrogen Permeation Through Grain Boundaries in Tungsten

P3-045 Anna Golubeva

Deuterium Retention in Reduced Activation Ferritic/Martensitic Steels (RAFMS) at ELM-like Pulse Plasma Heat Loads

Sergej Gordeev P3-046

Validation Study of Turbulence Models for Thermal-hydraulic Simulation of Helium Cooled DONES High Flux Test Module

P3-047 Dai Hamaguchi

Application of Friction Stir Processing on CuCrZr to Improve Material's Property

Sho Hayakawa P3-048

Temperature Parallel Simulated Annealing with Self-generated Basins for Searching the Stable State of Microstructures in Materials

P3-049 Takayuki Terai

Study of Extremely Low Nitrogen Concentration Lithium by Fe-5Ti Alloy Hot Trap

Takanori Hirose P3-050

Evaluation of Fatigue Properties of Reduced Activation Ferritic/Martensitic Steel, F82H for Development of Design Criteria

P3-051 Eiji Hoashi

Interaction between Surface Behavior and Inner Flow Pattern of Liquid Li Jet for Fusion Neutron Sources

Nils Holstein P3-052

Qualification Tests of an Electrochemically-based H-Sensor for Application in Liquid Lithium of IFMIF-DONES

P3-053 Haiyan Jiang

Experimental Study on Erosion-Corrosion Behavior of CuCrZr Weldment in Rotating Nanofluid

Jong-Il Kim P3-054

Effects of Sintering Conditions on the Microstructure of Li_2TiO_3 Tritium Breeding Materials

P3-055 Hirotatsu Kishimoto

Microstructural Stability of Tungsten Coated CFC Plates Aiming to Metal Wall Experiments at JT-60SA

Takuya Nagasaka P3-056

Effects of Specimen Thickness on Creep Properties of F82H Steel

P3-057 Motoki Nakajim

Temperature Dependency of Corrosion Properties of F82H in High Temperature Water

Naofumi Nakazato P3-058

Simultaneous Effects of Applied Stress and Dissolved Oxygen on Surface Morphology of Steels for Cooling Systems of Blanket Module in Pressurized Water

P3-059 Takashi Nozawa

Non-Contact Strain Evaluation for Miniature Tensile Specimens of Neutron-Irradiated F82H by Digital Image Correlation

Masayuki Ohta P3-060

Conceptual Design of Test Modules for DEMO Blanket, Diagnostic Device, and RI Production for A-FNS

P3-061 Takafumi Okita

Verification of Accuracy of Contact-Probe Distance Meter for Lithium Target of Fusion Neutron Source

Taira Okita P3-062

Atomistic Simulations for the Absorption Process of an SIA Cluster via Self-climb in BCC-Fe

P3-063 Mayank Rajput

Study of Nuclear Responses (transmutation, GPA, dpa) in Iron, Chromium and Tungsten for D-T Neutron Irradiation

Hideo Sakasegawa P3-064

Material Strength Standard of F82H for RCC-MRX

P3-065 Sawoong Kim

Fabrication and Characterization of the 316L(N)-IG ESR Forging Block and Non-ESR Rolling Plate for the ITER Blanket Shield Block

Alexander Spitsyn P3-066

The Tests of the Rohacell 71HF - a Candidate Material for the SIC-2 Windows for the ITER HFS Reflectometry

P3-067 Ildikó Szenthe

Irradiation of Optical Materials in BRR

Masayuki Tokitani P3-068

Leak Tight Joint Method for ODS-Cu/ODS-Cu by Application of the Advanced Brazing Technique

P3-069 Alexander v. Müller

Tungsten Fibre-Reinforced Copper as an Advanced Heat Sink Material for Highly Heat Loaded Plasma-facing Components

Rafael Vila P3-070

Advances in Radiation Hardness Testing of Optical Windows for DEMO

P3-071 Yoshiyuki Watanabe

Hydrogen Retention Behavior of Primary Precipitates in F82H Steel: Atomistic Calculation Based on the Density Functional Theory

Xiang Chen P3-072

Fracture Toughness Evaluation of Neutron Irradiated Eurofer97 Variants Using Miniature Bend Bars

P3-073 Shota Yamazaki

Deuterium Retention in Plasma-Implanted W with Various Damage Distributions

Ju-Hyeon Yu P3-074

Mechanical Properties and Microstructure of Three Kinds of ITER-Grade Pure Tungsten with Different Manufacturing Conditions

P3-075 Christoph Zauner

Thermal Interlayers for ITER – Development and Measurements

Yi Zhou P3-076

Application of Ti-doped MoS₂ Low Friction /Anti Seize Coating for ITER First Wall

P3-077 Lorenzo Malerba

Modelling Ion Irradiation and Slip Localisation in Ferritic-Martensitic Steels: The Fusion-Fission Cross-Cutting M4F Project

Gaetano Aiello P3-078

FEM Analyses of the ITER EC H&CD Torus Diamond Window Unit Towards the Prototyping Activity

P3-079 Sabine Schreck

Towards Large Area CVD Diamond Disks for Brewster-Angle Windows

Salvatore Almaviva P3-080

LIBS Measurements Inside the FTU Vessel Mock-up by Using a Robotic Arm

Thursday, Poster session 3

16:00 – 18:00

Chairs: Sandor Zoletnik, Hiroyasu Tanigawa

P3-081 Gianluca Barone

Preliminary Analysis
on the Thermal Shield of DTT

André Carls P3-082

Analyses and Design of the Wendelstein
7-X Port Bellows Protection

P3-083 Andrea Colangeli

Neutronics Related Integration Studies
of EU-DEMO Pellet Injection System

Joris Fellingner P3-084

Design of Endoscopes for Monitoring
Water-cooled Divertor in W7-X

P3-085 Namil Her

Progress on the Manufacturing
of ITER Thermal Shield

Junyoung Hur P3-086

Studies on the Tee Extrusion Process of ITER
Thermal Shield Manifold Pipes

P3-087 Xudong Li

Analysis of the Magneto-Mechanical Coupled Vibration
of the In-Vessel Structures of HL-2M Tokamak
Considering Halo Current Effect

Changyang Li P3-088

Design and Implementation of a Mobile
Parallel Robot for Assembling and
Machining the CFETR Vacuum Vessel

P3-089 Sumei Liu

Tolerance Analysis of Vacuum Vessel for Chinese Fusion
Engineering Test Reactor

Zhi Chen P3-090

Evaluation of Shielding Ability of Using Boron Water as
Coolant in CFETR Vacuum Vessel

P3-091 Francesco Lunardon

MEST, a New Magnetic Energy Storage and Transfer
System: Application Study to the European DEMO

Eliseo Visca P3-092

Fluid-dynamic Investigation of Water-Boron Flow
in the Vacuum Vessel of DTT Facility

P3-093 Hokyu Moon

Hydrostatic Pressure Test of the ITER Lower Port Stub
Extension for Factory Acceptance

Erwu Niu P3-094

Progress on the Qualification of Key Process
for ITER Correction Coils

P3-095 Simone Peruzzo

Design and Test of the Vacuum-tight
Electrically-insulated Crossed Joints of the New Vacuum
Vessel for the RFX-mod2 Experiment

Gergő I. Pokol P3-096

Design of the Ex-vessel Optical
System of the ITER Core
CXRS Diagnostic System

P3-097 Rocco Mozzillo

Design of the European DEMO Vacuum
Vessel Inboard Wall

Konstantin Senik P3-098

Numerical Simulation of the Temperature State of
T-15MD Vacuum Vessel and In-vessel Components

P3-099 Yusuke Shibama

Manufacturing and Welding Assembly
of the Vacuum Vessel on JT-60SA

Pavel Shigin P3-100

RF Discharge Mirror Cleaning System Development
for ITER Diagnostics

P3-101 Peter Spaeh

Structural Pre-conceptual Design Studies for a EU DEMO
Equatorial EC Port Plug and its Port Integration

Shayan Moradkhani P3-102

Condition Monitoring for a Robot Machine in the
Assembly of Fusion Reactor Vacuum Vessel

P3-103 Pietro Arena

Safety Analysis of the DONES Primary
Heat Removal System

Thomas Bale P3-104

Exploring the Sdoption of Mobile Augmented Reality for
Assistance in Fusion Plant Repair and Maintenance

P3-105 Xiaoman Cheng

Primary Heat Transfer System Design of the WCCB
Blanket for Multiple Operation Modes of CFETR

Sergio Ciattaglia P3-106

EU DEMO Plant and Building
Layout Criteria

P3-107 Lukasz Ciupinski

Design and Verification of a Non-self-supported Cryostat
for the DEMO Tokamak

Cristiano Ciurliuni P3-108

Thermal-hydraulic Modeling and Analysis of the Water
Cooling System for the ITER Test Blanket Module

P3-109 Matti Coleman

High-speed Generation of Neutronics-ready
CAD Models for DEMO Design

Aljaz Cufar P3-110

Shielding Concept and Neutronic Assessment of the
DEMO Lower Remote Handling and Pumping Ports

P3-111 Manuela Frisoni

Nuclear Assessment of the IFMIF-DONES
Lithium Target System

Curt Gliss P3-112

Integration of DEMO Radioactive Fluids Piping
into the Tokamak Building

P3-113 Jiangtao Jia

Comparative Neutronics Analysis of the European
HCPB DEMO Using SuperMC

Anikó Lilla Hegedűs P3-114

Analysis of Various Fusion Power
Plant Turbine Cycles

P3-115 Bong Guen Hong

Impact of Neutronic Constraints on Design and
Performance of a Tokamak Fusion Reactor

Seokho Kim P3-116

Maximum Allowable Fluid Velocity and Concern on
Piping Stability of ITER Tokamak Cooling Water System

P3-117 Hyun Wook Kim

Design Updates of the Korean Fusion Demonstration
Reactor Superconducting Toroidal Field Magnet System

Keeman Kim P3-118

Thermo-hydraulic Analysis of the K-DME0
CS Conductor Depending on the Design Change

P3-119 Monika Lewandowska

Design and Analysis of the Secondary Circuit of the
DEMO Fusion Power Plant for the HCPB BB Option
without the Energy Storage System and with the
Auxiliary Boiler

Guoqiang Li P3-120

Optimization of CFETR
Physics Design
to Meet the
Engineering Feasibility

Thursday, Poster session 3

16:00 – 18:00

Chairs: Sandor Zoletnik, Hiroyasu Tanigawa

P3-121 Emanuela Martelli

Investigation of Heat Transfer in a Steam Generator Bayonet Tube for the Development of PbLi Technology for EU DEMO Fusion Reactor

P3-123 Piyush Prajapati

Design and Comparison Study of Steam Generator Concepts and Power Generation Cycles for Fusion Reactors

P3-125 Arkady Serikov

Complete Neutronic Analysis for the Edge Charge Exchange Recombination Spectroscopy in Equatorial Port of ITER

P3-127 Andrea Tarallo

Advancements in CAD Implementation of EU-DEMO Water Cooled Lithium Lead Breeding Blanket Primary Heat Transfer Systems

P3-129 Kaiyun Chen

Progress on Design and R&D of ITER Radial X-ray Camera

P3-131 András Zsákai

Systems Engineering Challenges of IFMIF-DONES

P3-133 Ralf Schroeder

Local Safety System of the Neutral Beam Injection for W7-X

P3-135 Elena Nunnenmann

Verification and Validation of the GEANT4 Monte Carlo Code Toolkit for DEMO Neutronics Applications

Jin Hun Park P3-122

Statistical Analysis of Tritium Breeding Ratio Deviations in the DEMO due to Nuclear Data Uncertainties

Alexander Rydzy P3-124

The DTT Secondary Cooling Water Systems

Iuliana Stefan P3-126

Overview about Cryogenic Distillation Control and Safety Approach for Isotopes Separation Facility (ISF)

Shuai Wang P3-128

Preliminary Efficiency Analysis of Thermal-electric Conversion System for China Fusion Engineering Test Reactor with Helium Cooled Solid Breeder Blanket

Shuangbao Shu P3-130

An Intelligent Controller Design Based on the Neuroendocrine Algorithm for Plasma Density Control System on Tokamak Devices

Zhizhen Liu P3-132

Status of R&D on the Tritium Technology for Fusion Tritium Plant at CIAE

Iuliia Ipatova P3-134

Nanoscale Structure Damage in Irradiated W-Ta Alloys for Nuclear Fusion Reactors



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Walsh, Michael ITER Organisation
Yu, Jie INEST



General Information

Oral presentations

The schedule of the oral presentations can be seen in the detailed programme of this booklet. Speakers and session chairs are kindly requested to keep the time of the presentations. Make sure to bring your presentation file written on a USB flash drive. Presenters are kindly requested to give their presentation file to the technicians in the

„File upload room” – Bizet Hall
preferably a half day before the beginning of the corresponding session.

Keynote Presentations: 45 min.
(40 min + 5 min Q&A) per each

Plenary Presentations: 35 min.
(30 min + 5 min Q&A) per each

Invited Oral Presentations: 30 min.
(25 min + 5 min Q&A) per each

Contributed Oral Presentations: 20 min.
(15 min + 5 min Q&A) per each

Opening hours of the File upload room – Bizet Hall

Monday, 23rd September **8:00-18:00**

Tuesday, 24th September **8:00-18:00**

Wednesday, 25th September **8:00-14:00**

Thursday, 26th September **8:00-18:00**

Poster presentations

There will be three poster sessions held during the conference classified by topics. Posters will be allocated at the Gallery of the Pátria Hall on the second floor of the congress centre. We kindly ask our authors to be present at their posters in these sessions. Mounting materials are ensured by the organisers in the poster area.

Poster session 1. P1-001 – P1-131

Walk around:

Monday, 23rd September at 16:30-18:30
(includes topical sessions 1 and 2)

Poster mounting:

23rd September from 8:00

Removal:

23rd September at 18:30
(right after the poster session!)

Poster session 2. P2-001 – P2-130

Walk around:

Tuesday, 24th September at 16:15-18:15
(includes topical sessions 7, 8, 9, 10, 11 and 12)

Poster mounting:

24th September from 8:00

Removal:

24th September at 18:15
(right after the poster session!)

Poster session 3. P3-001 – P3-135

Walk around:

Thursday, 26th September at 16:00-18:00
(includes topical sessions 3, 4, 5 and 6)

Poster mounting:

26th September from 8:00

Removal:

27th September at 12:15
(latest before the closing ceremony)

Posters left on the boards after the removal deadline will be dismantled and will not be stored by the organisers.

Symposium venue

Budapest Congress Center (BCC)

Address: 1123 Budapest, Jagelló u. 1-3.

Phone: +36 1 372 5400

www.bcc.hu

Opening hours of the registration desk

The registration desk is operated on Sunday in the Larus Event Centre where the Welcome reception takes place.

For the rest of the week the registration desk is at your disposal in the Budapest Congress Center at the main entrance level, just opposite the main entrance.

Participants coming from Novotel should come up one level on the stairs. Please, make sure to pick up your badge as soon as possible, as it is mandatory to wear your badge during all scientific sessions, meals and social events.

Sunday, 22nd September 16:00-20:00
(on Sunday only in Larus Event Centre)

Monday, 23rd September 8:00-18:00
(from Monday on in BCC, main entrance level)

Tuesday, 24th September 8:00-18:00

Wednesday, 25th September 8:00-14:00

Thursday, 26th September 8:00-18:00

Friday, 27th September 8:00-12:00

WiFi, smartphone application

Free WiFi is available for the participants to connect their devices. It is especially important as you are highly recommended to use our smart phone application called SmartEvents which is kept up-to-date in relation to all programme changes. If you have not downloaded it yet, please contact our personnel at the registration area.

Technical organiser

Diamond Congress Ltd.

Address: 1255 Budapest, P.O. Box 48.

Phone: +36-1-225-0209 (Cell phone: +36-20-9362969)

www.diamond-congress.hu

Meals and social events

Please, note that lunches are not part of the standard registration fees. For those participants who have selected the full registration fee (including lunch), the admission is free to enter the Arcade Restaurant where a complete buffet lunch is served on Monday, Tuesday, Wednesday and Thursday. Individual lunch tickets and on spot lunch ticket purchase is not possible.

Participants may use the neighbouring MOM shopping mall's restaurants and other catering facilities in the vicinity. The bistro of Novotel Budapest City has only very limited capacity for a la carte catering.

The coffee break beverages and cakes are offered to each registered delegate during the dedicated times of the coffee break slot, indicated in the detailed programme.

The following social events are included in the delegates' registration fees:
(except the daily registration fees)

- **Sunday, 22nd September 19:00-21:00**
Welcome reception (Larus Event Centre)
- **Monday, 23rd September 19:30-20:00**
Organ concert (St. Stephen's Basilica)
Transportation is NOT provided, please refer to your invitation card
- **Thursday, 26th September 19:30-24:00**
Banquet (Várkert Bazaar)
Transportation is NOT provided, please refer to your invitation card

Satellite meetings

Attendance by invitation
or registration only

23rd September 2019
09:00-10:30

Multilateral Discussions

Gábor Veres Brahms I.

23rd September 2019
10:55-11:25

FED Student Award Committee Meeting I.

Gábor Veres Brahms I.

23rd September 2019
14:00-18:00

2019 International Workshop on Sub-Task Fusion Neutronics under IEA IA NTFR

Rosaria Villari Liszt II-III.

23rd September 2019
17:30-18:30

Meeting for the Guest Editors of FED Special Edition

Gábor Veres Brahms I.

24th September 2019
12:00-14:00

ICEX Meeting

Veruska De Prado Liszt II-III.

24th September 2019
12:45-14:15

Editorial Board Meeting for the FUSION Journal

David Hopwood Liszt I.

24th September 2019
14:30-17:30

Executive Committee (ExCo) Meeting of the International Energy Agency (IEA) Technology Collaboration Programme (TCP) on the Environment, Safety and Economic Aspects of Fusion Power (ESEFP)

Keeman Kim Brahms II.

24th September 2019
16:20-18:20

Collaboration Meeting between NFRI and INEST

Hyejin Yun Liszt I.

25th September 2019
13:00-14:00

KO-US TBM Collaboration Meeting

Seungyon Cho Brahms II.

25th September 2019
14:30-16:30

Progress Meeting on the Guidelines for the Standardization of Small Specimen Test Techniques for Fusion Applications

Sehila Maria Gonzalez de Vicente Brahms I.

26th September 2019
14:00-17:00

Executive Committee Meeting of the IEA Technical Coordination Programme (TCP) on Nuclear Technology of Fusion Reactors (NTFR)

David Maisonnier Brahms II.

26th September 2019
17:30-18:00

FED Student Award Committee Meeting II.

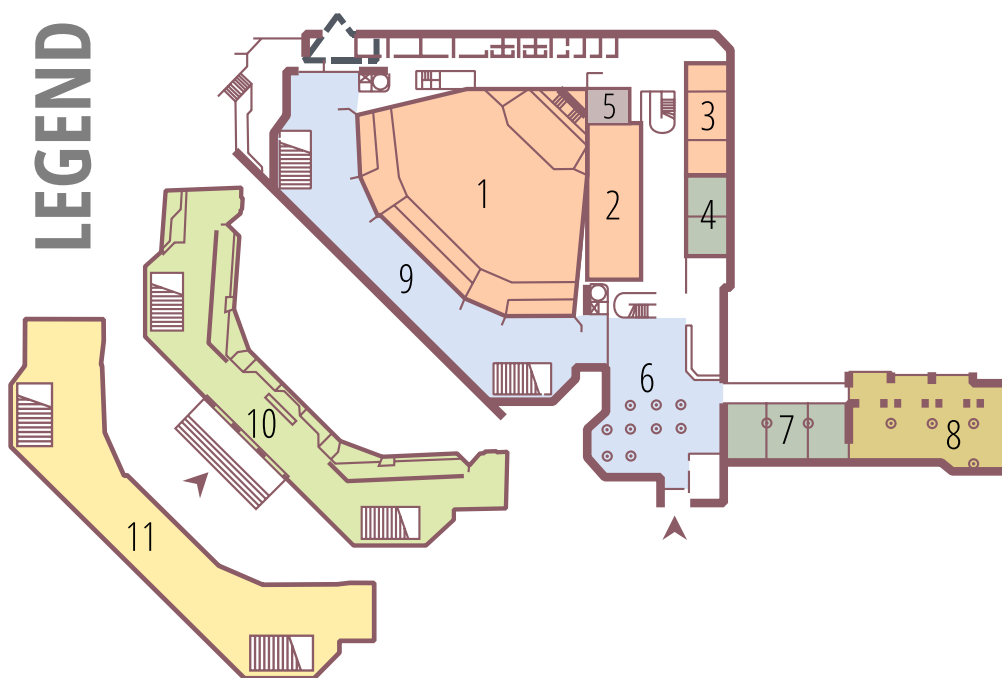
Gábor Veres Brahms I.

Our exhibitors



LEGEND OF THE CONGRESS VENUE

- 1. Pátria Hall:** Plenary and parallel sessions
- 2. Bartók Hall:** Parallel sessions
- 3. Lehár Hall:** Parallel sessions
- 4. Brahms I-II. Halls:** Satellite meetings
- 5. Bizet Hall:** File upload room
- 6. Aula:** Coffee break
- 7. Liszt I-II-III. Halls:** Satellite meetings
- 8. Arcade Restaurant:** Lunch
- 9. Mirror Corridor of Pátria Hall (Congress level):** Exhibition, coffee break
- 10. Entrance Corridor (Entrance level):** Registration, info desk
- 11. Gallery Corridor (Gallery level):** Poster session



EXHIBITORS

**A1 Institute of Nuclear Energy
Safety Technology**

A2 UK Atomic Energy Authority

A3 SAES Group

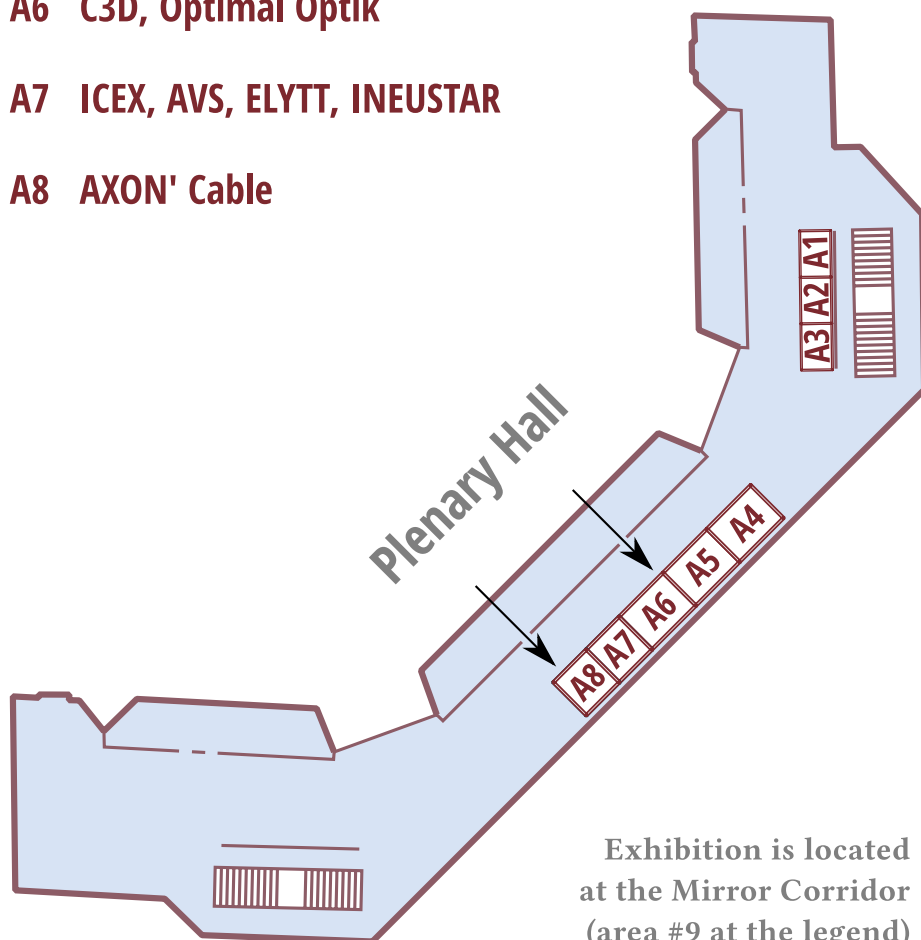
A4 Wigner, GEMS

A5 Adimtech, Fusion Instruments, OMI

A6 C3D, Optimal Optik

A7 ICEX, AVS, ELYTT, INEUSTAR

A8 AXON' Cable



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
	Registration	Registration	Registration	Registration	Keynote
	Opening	Plenary	Plenary	Plenary	Plenary
	Keynotes	Parallel sessions	Parallel sessions	Parallel sessions	Privately-Funded Fusion Research
	Lunch				Closing
Place: Larus Event Centre	Parallel sessions	Parallel sessions			
	Poster session 1	Poster session 2	Social tours		
Registration	Organ concert St. Stephen's Basilica	River cruise & dinner			
Welcome reception				Banquet Place: Varkert Bazaar	