



# Welcome !



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Aix-Marseille  
université  
Socialement engagée

## SUNDAY 12 MAY 2024 – TUTORIAL SESSION

**13:30**

Overview on PMI Processes – *Y. UEDA*

**14:30**

Basics of atomic physics relevant for the edge plasmas – *S. KRASHENINNIKOV*

**15:30 > Break**

**15:45**

Conditioning processes – *J. WINTER*

**16:45**

PWI issues in fusion power plants: from large vacuum chambers to compact units – *A. GROSMAN*

## MONDAY 13 MAY 2024

**08:30 > Opening session**

**08:50 > Introduction | Oral**

Plasma-wall interaction impact of the ITER re-baseline – *Richard PITTS, ITER ORGANIZATION, France*

**Operation in Metallic Machines | Oral**

**09:20 – Review**

Investigations in all metal devices relevant for the operation of ITER equipped with all W PFCs – *Rudolf NEU, MPI FOR PLASMA PHYSICS, GERMANY*

**10:00 – Invited**

Overview of plasma wall interactions in the first high particle fluence campaign of WEST – *Emmanuelle TSITRONE, CEA IRFM, France*

**10:30 – Oral**

ICRF-specific W sources: advances in minimization in ASDEX Upgrade and near-field based extrapolations to ITER with W wall – *Volodymyr BOBKOV, Max-Planck-Institut für Plasmaphysik, GERMANY*

**10:50 > Coffee break**

**Boronisation | Oral**

**11:20 – Oral**

Comparison of plasma start-up with high Z and low Z first wall in WEST – *Christophe GUILLEMAUT, CEA IRFM, France*

**11:40 - Invited**

**Boron coating on full metal wall in EAST for supporting ITER new baseline** - G.Z. ZUO, INSTITUTE OF PLASMA PHYSICS, HEFEI INSTITUTES OF PHYSICAL SCIENCE, CHINESE ACADEMY OF SCIENCES, CHINA

**12:10 - Oral**

**Full W ITER: assessment of expected W erosion and implications of boronization on fuel retention** - Klaus SCHMID, MAX-PLANCK-INSTITUTE FOR PLASMAPHYSICS, GERMANY

**12:30 - Oral**

**Deuterium retention behaviors of boron films at DIII-D divertor surface** - Shota ABE, Princeton Plasma Physics Laboratory, UNITED STATES

**12:50 | 14:00 > Lunch break****Conditioning & Erosion deposition | Oral****14:00 - Invited**

**JT-60SA wall conditioning towards the first plasma** - Tomohide NAKANO, NATIONAL INSTITUTES FOR QUANTUM SCIENCE AND TECHNOLOGY, JAPAN

**14:30 - Invited**

**Boronisation with tungsten plasma-facing surfaces in ASDEX Upgrade** - Volker ROHDE, MAX PLANCK INSTITUTE FOR PLASMAPHYSICS, GERMANY

**15:00 - Oral**

**Deposition and erosion simulation on diagnostic first mirrors in ITER with a boronized first wall** - Sebastian RODE, Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung - Plasmaphysik, Partner of the Trilateral Euregio Cluster (TEC), GERMANY

**15:20 - Oral**

**Synergistic effect of boron powder and neon gas injection for power exhaust and ELM suppression in EAST with tungsten divertor** - Zhen SUN, PRINCETON PLASMA PUBLIC LABORATORY, UNITED STATES

**15:40 - Invited**

**Full-torus impurity transport simulation in multi-species impurity powder injection experiments in the Large Helical Device** - Mamoru SHOJI, National Institute for Fusion Science, JAPAN

**16:10 > Coffee break****16:20 | 18:40 > Poster session 1****19:00 | 21:00 > Welcome reception**

## **Turbulence, transport simulations in the edge | Oral**

### **08:00 – Review**

The path to high-fidelity numerical modelling of exhaust issues in magnetic fusion devices: challenges, state-of-the-art and perspectives - *Patrick TAMAIN, CEA, France*

### **08:40 – Invited**

Modeling turbulent impurity transport in the scrape-off-layer of DIII-D - *Shawn ZAMPERINI, General Atomics, UNITED STATES*

### **09:10 – Oral**

Fluid modeling of plasma-neutrals turbulence in detached regimes - *Konrad EDER, Max Planck Institute for Plasma Physics, GERMANY*

### **09:30 – Invited**

Fluctuation Entrainment in Tokamak Scrape-Off Layers: Implications for SOL Width and Detachment - *Xueqiao XU, LAWRENCE LIVERMORE NATIONAL LABORATORY, UNITED STATES*

## **10:00 > Coffee break**

## **Impurity sources and transport | Oral**

### **10:30 – Invited**

Advances in understanding of impurity transport in the boundary plasma of EAST - *Guoliang XU, CHINESE ACADEMY OF SCIENCE, CHINA*

### **11:00 – Oral**

Advances in understanding impurity sources, transport, and power exhaust physics using a tungsten-coated slot divertor on the DIII-D tokamak - *Tyler ABRAMS, General Atomics, UNITED STATES*

### **11:20 – Oral**

3D SOLEDGE3X-ERO2.0 simulations for tungsten sources and migration in WEST discharges and comparison with experimental data - *Guido CIRAILO, CEA, France*

### **11:40 – Oral**

Modelling global  $^{13}\text{C}$  tracer migration in W7-X using ERO2.0 - *Juri ROMAZANOV, Forschungszentrum Jülich GmbH, Institut für Energie – und Klimaforschung – Plasmaphysik, Partner of the Trilateral Euregio Cluster (TEC), GERMANY*

## **12:00 | 13:10 > Lunch break / Luncheon Women in fusion**

**13:10 | 14:00****PSI 50th anniversary****Detachment Physics - Oral****14:00 - Invited**

Validating reduced models for detachment onset and reattachment timescales - *Stuart HENDERSON, UKAEA, UNITED KINGDOM*

**14:30 - Oral**

Experimental confirmation of island geometry effects on detachment in W7-X - *Victoria WINTERS, MAX PLANCK INSTITUTE FOR PLASMA PHYSICS, GERMANY*

**14:50 - Oral**

Extend from partial to deep energy detachment with protection of the entire new corner slot tungsten divertor on EAST - *Kedong LI, Institute of Plasma Physics, HFIPS, Chinese Academy of Sciences, CHINA*

**15:10 - Invited**

Understanding and predicting the benefit of long-legged divertors on MAST-U - *Kevin VERHAEGH, United Kingdom Atomic Energy Authority, UNITED KINGDOM*

**15:40 - Oral**

Existence of the detachment cliff at ASDEX Upgrade - *Luca SCOTTI, UNIVERSITY OF MILAN-BICOCCA, ITALY*

**16:00 > Coffee break****16:20 | 18:40 > Poster session 2****WEDNESDAY 15 MAY 2024****Liquid Metals | Oral****08:00 - Review**

Recent progresses of liquid metal PFCs in fusion devices - *Jiansheng HU, Institute of Plasma Physics, Hefei Institute of Physical Science, China Academy of Sciences, CHINA*

**08:40 - Invited**

Behaviour of liquid tin in laboratory plasmas and ASDEX Upgrade - *Ralph DUX, Max-Planck-Institut für Plasmaphysik, GERMANY*

**09:10 - Invited**

Achievement of key steps toward low-recycling, liquid lithium fusion devices in the Lithium Tokamak Experiment- $\beta$  - *Dennis BOYLE, Princeton Plasma Physics Laboratory, UNITED STATES*

### Monday 13

8:00

8:10

8:20

Opening session

Introduction

R. PITTS

R1 R. Neu

II E. TsiTrone

O1 V. Bobkov

break

O2 C. Guillemaut

I2 G. Zuo

O3 K. Schmid

O4 S. Abe

8:30

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12:40

### Tuesday 14

R2 P. Tarnain

I6 S. Zamperini

O7 K. Eder

I7

X. Xu

break

I8

G. Xu

O8 T. Abrams

O9 G. Ciruolo

O10 J. Romazanov

Lunch

Luncheon

women in fusion

### Wednesday 15

R3 J. Hu

I11 R. Dux

I12 D. Boyle

O14 M. Morbey

break

I13 A. Widdowson

O15 E. Wüst

I14

Y. Ferro

O16 C. Baumann

O17 E. Bernard

Lunch

### Thursday 16

R4 Y. Ueda

I15 J.-S. Park

O18 R. Juneja

I16

T. Morgan

break

O19 A. Glasser

O20 B. Duval

O21

M. Kriete

O22 D. Silvagni

O23 S. Ballinger

Lunch

### Friday 17

R5 M. Bernert

O27 T. Bosman

I19

C. Giroud

I20

N. Horsten

break

Poster session 4

Lunch

12:50	Lunch		
13:00			
13:10		PSI 50th anniv.	
13:20			117 M. Faltsch 121 R. Ding
13:30			
13:40			
13:50			O24 F. Ding 028 U. Losada Rodriguez
14:00	13 T. Nakano	19 S. Henderson	
14:10			118 L. Casali 029 E. Tonello
14:20			
14:30	14 V. Rohde	011 V. Winters	030 A. Zito
14:40			
14:50			122 F. Reimold
15:00	05 S. Rode	012 K. Li	
15:10		110 K. Verhaegh	
15:20	06 Z. Sun		026 B. Lomanowski
15:30			break
15:40	15 M. Shoji	013 L. Scotti	
15:50			
16:00	break	break	
16:10			Poster session 3 ... / ... until 18:10
16:20	Poster session 1 ... / ... until 18:40	Poster session 2 ... / ... until 18:40	
	Welcome reception 18:00		Gala dinner 18:30
			Closing session

Social activities

... / ...  
until 18:00

Review

Invited

Oral

**09:40 – Oral**

D retention in Li-D co-deposits and outgassing: experiments on Magnum-PSI and DIII-D – *Maria MORBEY, DIFFER, NETHERLANDS*

**10:00 > Coffee break****Retention & Permeation of T | Oral****10:20 – Invited**

Overview of fuel retention and recovery in jet deuterium-tritium operation – *Anna WIDDOWSON, United Kingdom atomic energy Authority, UNITED KINGDOM*

**10:50 – Oral**

Depth-resolved measurement of hydrogen isotope retention in pre-damaged tungsten using Laser-Induced Breakdown Spectroscopy – *Erik WÜST, Forschungszentrum Jülich GmbH, Institut für Energie und Klimaforschung – Plasmaphysik, GERMANY*

**11:10 – Invited**

Hydrogen isotopes in fusion-relevant materials: from the atom to the macroscopic scale, from the inside of the monoblocks to the boundary with the plasma – *Yves FERRO, Aix-Marseille University, CNRS, PIIM, Marseille, France*

**11:40 – Oral**

Global tungsten erosion and impurity migration modeling for the DEMO with the ERO2.0 code – *Christoph BAUMANN, Institut für Energie, GERMANY*

**12:00 – Oral**

Study of tritium permeation in Eurofer97: combining inventory and permeation experiments with multiscale modelling for H/D/T behavior characterization – *Elodie BERNARD, CEA, France*

**12:20 | 13:30 > Lunch break****12:30 | 18:00 > Social activities****THURSDAY 16 MAY 2024****PMI & PFCs | Oral****08:00 – Review**

Recent tungsten PMI studies for ITER and fusion reactors – *Yoshio UEDA, OSAKA UNIVERSITY, JAPAN*



**08:40 - Invited**

Time-dependent plasma and material model integration to address dynamic recycling in the DIII-D divertor - *Jae-Sun PARK, OAK RIDGE NATIONAL LABORATORY, UNITED STATES*

**09:10 - Oral**

Machine learning assisted micro-to-meso-to-macro scale fracture modeling in tungsten plasma facing materials - *Rinkle JUNEJA, OAK RIDGE NATIONAL LABORATORY, UNITED STATES*

**09:30 - Invited**

Tungsten monoblock performance under slow transient loading conditions in Magnum-PSI - *Thomas MORGAN, DIFFER, NETHERLANDS*

**10:00 > Coffee break****Diagnostics | Oral****10:30 - Oral**

Digital twin of edge tokamak diagnostics for heat exhaust prediction - *Anna GLASSER, Aix-Marseille Université, CNRS, Centrale Méditerranée, M2P2, FRANCE*

**10:50 - Oral**

Electron and Ion kinetic profile evolution in a TCV divertor toward detachment - *Basil DUVAL, SPC/EPFL, SWITZERLAND*

**11:10 - Oral**

Measurements of the divertor ion temperature distribution in the W7-X stellarator - *Matt KRIETE, Auburn University, UNITED STATES*

**11:30 - Oral**

The separatrix electron density in JET, AUG and C-Mod H-mode plasmas: a common evaluation procedure and correlation with engineering parameters - *Davide SILVAGNI, Max Planck Institute for Plasma Physics, GERMANY*

**11:50 - Oral**

Flow structures in the island divertor of Wendelstein 7-X measured with gas puff imaging and electric probes - *Sean BALLINGER, MIT PSFC, UNITED STATES*

**12:10 | 13:20 > Lunch break****Edge operationnal regimes | Oral****13:20 - Invited**

The quasi-continuous exhaust regime in ASDEX Upgrade and JET - *Michael FAITSCH, Max-Planck-Institute for Plasma Physics, GERMANY*

**13:50 - Oral**

Compatibility of neon seeding effects on divertor detachment and core per-

formance in EAST – Fang DING, INSTITUTE OF PLASMA PHYSICS, HFIPS, CHINESE ACADEMY OF SCIENCES, CHINA

#### 14:10 – Invited

First achievement of highly radiating plasmas in negative triangularity – Livia CASALI, The University of Tennessee-Knoxville, UNITED STATES

#### 14:40 – Oral

Separatrix ion to electron temperature ratio in the TCV and ASDEX Upgrade tokamak – Marco CAVEDON, UNIVERSITÀ DI MILANO-BICOCCA, ITALY

#### 15:00 – Oral

Validation of a divertor physics parameter-based separatrix density scaling approach using the JET-ILW H-mode pedestal database – Bartosz LOMANOWSKI, OAK RIDGE NATIONAL LABORATORY, UNITED STATES

#### 15:20 > Coffee break

#### 15:40 | 18:10 > Poster session 3

#### 19:30 | 23:00 > Gala dinner

## FRIDAY 17 MAY 2024

### Radiative regimes & D-T plasmas | Oral

#### 08:00 – Review

X-point radiation: from discovery to potential application in a future reactor – Matthias BERNERT, MAX-PLANCK-INSTITUT FÜR PLASMAPHYSIK, GARCHING, GERMANY

#### 08:40 – Oral

Systematic design of controllers for the X-point radiator using system identification in AUG, JET D and D-T operation – Thomas BOSMAN, DIFFER, NETHERLANDS

#### 09:00 – Invited

High current Neon-seeded ITER baseline scenario in JET D and D-T – Carine GIROUD, UKAEA, UNITED KINGDOM

#### 09:30 – Invited

Validation of SOLPS-ITER and EDGE2D-EIRENE simulations for H, D, and T JET ITER-like wall low-confinement mode plasmas – Niels HORSTEN, KU Leuven, BELGIUM

#### 10:00 > Coffee break

**10:20 | 12:10 > Poster session 4**

**12:10 | 13:20 > Lunch break**

### **Impurity transport | Oral**

**13:20 - Invited**

Charge-exchange deuterium flux to the main chamber wall and its induced material erosion in EAST - *Rui DING, Institute of Plasma Physics, Chinese Academy of Sciences, CHINA*

**13:50 - Oral**

Time-resolved spectroscopic measurements of tungsten gross-erosion, re-deposition, and S/XB coefficients in the DIII-D tokamak - *Ulises LOSADA RODRIGUEZ, AUBURN UNIVERSITY, UNITED STATES*

**14:10 - Oral**

Global modelling of helium Plasma-Wall Interaction experiments in AS-DEX-Upgrade - *Elena TONELLO, EPFL, SWITZERLAND*

**14:30 - Oral**

SOLPS-ITER modelling of helium transport, recycling and pumping in the ASDEX Upgrade divertor - *Antonello ZITO, Max-Planck-Institut für Plasmaphysik, GERMANY*

### **Power Exhaust | Invited**

**14:50 - Invited**

Power & particle exhaust limitations in W7-X and its relation to the density build-up - *Felix REIMOLD, MAX PLANCK INSITUTE FOR PLASMA PHYSICS, GERMANY*

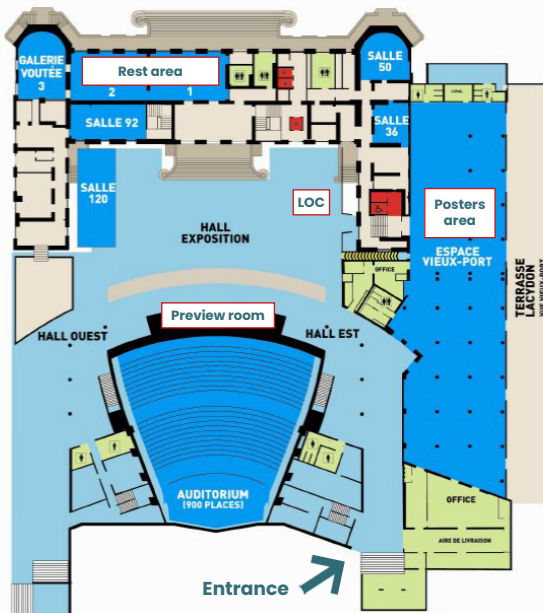
**15:20 - Invited**

The separatrix operational space in ASDEX Upgrade and implications for power exhaust in SPARC - *Thomas EICH, COMMONWEALTH FUSION SYSTEMS, UNITED STATES*

**15:50 > Closing session**



# PALAIS DU PHARO



# MARSEILLE



Social  
activities



Social  
events