

W7-X OP 2.1 results

Report of Contributions

Contribution ID: 1

Type: **not specified**

Welcome and introduction

Monday 27 November 2023 09:00 (5 minutes)

Presenter: GRULKE, Olaf (IPP Greifswald)

Contribution ID: 2

Type: **not specified**

High Performance Scenarios

Monday 27 November 2023 09:40 (20 minutes)

O1: High Performance Scenarios
D1: Steady State High Performance
D2: Density Profile Control

Presenter: FUCHERT, Golo (IPP Greifswald)

Session Classification: TF-I

Contribution ID: 3

Type: **not specified**

Impurity Transport and Accumulation

Monday 27 November 2023 10:30 (15 minutes)

O1: High Performance Scenarios

D3: Impurity Accumulation

Presenter: REIMOLD, Felix (IPP-Greifswald)

Session Classification: TF-I

Contribution ID: 4

Type: **not specified**

Discussion O1: High Performance Scenarios

Monday 27 November 2023 10:45 (15 minutes)

Session Classification: TF-I

Contribution ID: 5

Type: **not specified**

Effective Ion Heating and Fast Ion Losses

Monday 27 November 2023 11:00 (20 minutes)

O2: Heating Scenarios

D4: Effective Ion Heating

D6: Fast Ion Losses

Presenter: Dr LAZERSON, Samuel (IPP Bereich Greifswald)

Session Classification: TF-I

Contribution ID: 6

Type: **not specified**

Status of the ECR / NBI / ICRH Heating Systems

Monday 27 November 2023 11:20 (10 minutes)

O2: Heating Scenarios

D5: W7-X Operational Map

Presenter: STANGE, Torsten (IPP Bereich Greifswald)

Session Classification: TF-I

Contribution ID: 7

Type: **not specified**

Discussion O2: Heating Scenarios / Fast Ions / W7-X Operational Map

Monday 27 November 2023 11:30 (20 minutes)

Session Classification: TF-I

Contribution ID: 8

Type: **not specified**

ICRH Plasma Startup at low Magnetic Field

Monday 27 November 2023 09:05 (15 minutes)

O3: High Beta Scenario

D7: Plasma Startup at low B

Presenter: ONGENA, Jef (IPP Bereich Greifswald)

Session Classification: TF-I

Contribution ID: 9

Type: **not specified**

Discussion O3: High Beta Scenarios

Monday 27 November 2023 09:20 (20 minutes)

Session Classification: TF-I

Contribution ID: **10**

Type: **not specified**

Overview and O5: Reference discharge

Monday 27 November 2023 13:00 (10 minutes)

D13: Regular performance of a standardized discharge with defined diagnostic coverage throughout the campaign

Title: Session overview for TF-II: Edge Scenario Development

Presenter: HAMMOND, Kenneth Charles (IPP Bereich Greifswald)

Session Classification: TF-II

Contribution ID: 11

Type: **not specified**

O1: Integrated scenarios for long-pulse operation with PFC heat load control, efficient particle exhaust, and impurity screening

Monday 27 November 2023 13:10 (15 minutes)

D1: Demonstration of safe divertor scenarios to avoid overloaded plasma-facing components

D2: Determination of trim and/or control coil currents required to correct error fields

Presenter: GAO, Yu (IPP Bereich Greifswald)

Session Classification: TF-II

Contribution ID: 12

Type: **not specified**

O1: Integrated scenarios; O2: Detachment scenarios

Monday 27 November 2023 13:25 (20 minutes)

D4: Demonstration of long-pulse operation

D5: Demonstration of scenarios with long, stationary divertor detachment; in particular, for the high-mirror, high-iota and standard configurations

D6: Characterize the conditions under which detachment is possible

D7: Achieve rapid transition to detachment

Presenters: KRYCHOWIAK, Maciej (IPP Bereich Greifswald); JAKUBOWSKI, Marcin (IPP Bereich Greifswald)

Session Classification: TF-II

Contribution ID: 13

Type: **not specified**

O1: Integrated scenarios for long-pulse operation with PFC heat load control, efficient particle exhaust, and impurity screening

Monday 27 November 2023 13:45 (15 minutes)

D3: Demonstration of effective pumping, high divertor compression, and qualification of fueling actuators

Title: Overview: particle exhaust and gas balance

Presenter: HAAK, Victoria (IPP Bereich Greifswald)

Session Classification: TF-II

Contribution ID: **14**

Type: **not specified**

Discussions long pulse and detachment scenarios

Monday 27 November 2023 14:00 (20 minutes)

Session Classification: TF-II

Contribution ID: 15

Type: **not specified**

O3: Exploration of scenarios compatible with carbon-free operation and tungsten PFCs

Monday 27 November 2023 14:35 (20 minutes)

D8: Definition of the operation limits associated with plasma-facing components containing tungsten materials

D10: Determination of erosion effects due to seeding impurities

Presenter: DHARD, Chandra-Prakash (IPP Bereich Greifswald)

Session Classification: TF-II

Contribution ID: 16

Type: **not specified**

O3: Exploration of scenarios compatible with carbon-free operation and tungsten PFCs

Monday 27 November 2023 14:55 (15 minutes)

D9: Characterize the scrape-off layer retention for tungsten impurities (eroded from baffle and heat shield)

D11: Characterize enrichment/accumulation for low-Z and high-Z impurities

Title: Spectroscopic analysis of impurities in the edge

Presenter: GRADIC, Dorothea (IPP Greifswald)

Session Classification: TF-II

Contribution ID: 17

Type: **not specified**

TF-III O2: Complete the edge and SOL physics basis in the magnetic configuration space of W7-X

Monday 27 November 2023 15:10 (15 minutes)

D2: Validation of edge transport codes

Title: Validation of edge modeling codes

Presenter: WINTERS, Victoria (E5)

Session Classification: TF-II

Contribution ID: **18**

Type: **not specified**

Discussions tungsten PFCs and conditioning

Monday 27 November 2023 15:40 (20 minutes)

Session Classification: TF-II

Contribution ID: **19**

Type: **not specified**

O4: Development of wall conditioning procedures

Monday 27 November 2023 15:25 (15 minutes)

D12: Condition walls to enable plasmas with high density gradients necessary for high performance

-> Wall conditioning: before and during the campaign

Presenter: VANO, Lilla (IPP Bereich Greifswald)

Session Classification: TF-II

Contribution ID: **20**

Type: **not specified**

Introduction and missing topics

Tuesday 28 November 2023 09:00 (15 minutes)

Presenters: KILLER, Carsten (IPP Bereich Greifswald); CARRALERO, Daniel (CIEMAT)

Session Classification: TF-III

Contribution ID: 21

Type: **not specified**

O1: Complete the core transport and stability physics basis in the extended operational space

Tuesday 28 November 2023 09:15 (10 minutes)

Talk title: Status of the OP2.1/OP2.2 profile analysis

D1: Documentation of relevant plasma profiles for detailed transport analysis and modelling

Presenter: BEURSKENS, Marc (IPP Greifswald)

Session Classification: TF-III

Contribution ID: 22

Type: **not specified**

O1: Complete the core transport and stability physics basis in the extended operational space

Tuesday 28 November 2023 09:25 (15 minutes)

D2: Assessment of the effects of heating and fueling actuators (profile shaping, fast ions) and magnetic configuration on turbulent transport

Presenter: BÄHNER, Jan-Peter (IPP Bereich Greifswald)

Session Classification: TF-III

Contribution ID: 23

Type: **not specified**

O1: Complete the core transport and stability physics basis in the extended operational space

Tuesday 28 November 2023 09:40 (10 minutes)

D3: Documentation of core impurity profiles and perturbative experiments for detailed impurity transport analysis and modelling

Presenter: ROMBA, Thilo (IPP Bereich Greifswald)

Session Classification: TF-III

Contribution ID: 24

Type: **not specified**

O1: Complete the core transport and stability physics basis in the extended operational space

Tuesday 28 November 2023 09:50 (15 minutes)

D4: Confirmation of neoclassical optimization at increased ion temperatures.

D5: Confirmation of reduced equilibrium currents at higher betas and different magnetic configurations.

D6: Documentation of MHD stability and limits and fast-particle driven MHD modes within the magnetic configuration space.

Presenter: GEIGER, Joachim (Max-Planck-Institute for Plasma Physics, Greifswald, Germany)

Session Classification: TF-III

Contribution ID: 25

Type: **not specified**

O1: Complete the core transport and stability physics basis in the extended operational space

Tuesday 28 November 2023 10:05 (15 minutes)

D6: Documentation of MHD stability and limits and fast-particle driven MHD modes within the magnetic configuration space.

Presenter: RAHBARNIA, Kian (IPP Greifswald)

Session Classification: TF-III

Contribution ID: 26

Type: **not specified**

Discussions core transport and stability

Tuesday 28 November 2023 10:20 (20 minutes)

Session Classification: TF-III

Contribution ID: 27

Type: **not specified**

O2: Complete the edge and SOL physics basis in the magnetic configuration space of W7-X

Tuesday 28 November 2023 11:00 (20 minutes)

D1: Providing the experimental data base for understanding transport mechanisms in the island divertor SOL and across the LCFS, including flows, drifts, turbulence

D4: Characterization of asymmetries of plasma conditions and radiation, mapping of diagnostic results in 3D island divertor

Presenter: BALLINGER, Sean

Session Classification: TF-III

Contribution ID: 28

Type: **not specified**

O2: Complete the edge and SOL physics basis in the magnetic configuration space of W7-X

Tuesday 28 November 2023 11:20 (15 minutes)

D1: Providing the experimental data base for understanding transport mechanisms in the island divertor SOL and across the LCFS, including flows, drifts, turbulence

D2: Validation of edge transport codes

Presenter: KRIETE, Matt (Auburn University)

Session Classification: TF-III

Contribution ID: 29

Type: **not specified**

O2: Complete the edge and SOL physics basis in the magnetic configuration space of W7-X

Tuesday 28 November 2023 11:35 (10 minutes)

D4: Characterization of asymmetries of plasma conditions and radiation, mapping of diagnostic results in 3D island divertor

Presenter: PARTESOTTI, Gabriele (IPP Bereich Greifswald)

Session Classification: TF-III

Contribution ID: **30**

Type: **not specified**

Discussions SOL physics

Tuesday 28 November 2023 11:45 (15 minutes)

Session Classification: TF-III

Contribution ID: **31**

Type: **not specified**

Schedule and forecast OP 2.2

Tuesday 28 November 2023 13:00 (15 minutes)

Presenter: GRULKE, Olaf (IPP Greifswald)

Session Classification: general Discussions

Contribution ID: 32

Type: **not specified**

Simulations and Projections of High Performance Scenarios

Monday 27 November 2023 10:00 (15 minutes)

O1: High Performance Scenarios

D1: Steady State High Performance

Presenter: BEURSKENS, Marc (IPP Greifswald)

Session Classification: TF-I