Monday, September 6, 2021

Please note all times are given in CET.

12:30-12:40 Welcome and Information

Core Transport: Session 1

Chair: R. M. McDermott

12:40-13:35 **Plenary Talk** (40' + 15')
Speaker: P. Mantica
Overview of turbulence stabilization by electromagnetic effects and fast ions

13:35-14:00 (15' + 10')
Speaker: M. N. A. Beurskens
Clamping of the ion temperature at 1.5 keV in electron heated plasmas with a~0.5 m in ASDEX Upgrade, the Large Helical Device and Wendelstein 7-X

14:00-14:25 (15' + 10')
Speaker: J. Yang
Interaction of Fast Ions with Coupled Kink and Tearing Mode in NSTX

14:25-14:55 Discussion (30')

14:55-15:35 (40') Break

Core Transport: Session 2

Chair: M. Podesta

15:35-16:00 (15' + 10')
Speaker: J. Ruiz-Ruiz
Gyrokinetic modelling and experimental comparisons of radial correlation and time delay Doppler Backscattering measurements in JET

16:00-16:25 (15' + 10')
Speaker: F. Sciortino
Experimental Inference and Modeling of Impurity Transport in Alcator C-Mod and DIII-D regimes without ELMs

16:25-16:50 (15' + 10')
Speaker: X. Jian
Advances in understanding core transport of DIII-D high β_p scenarios

16:50-17:20 Discussion (30')

17:20-18:00 (40') Break

Poster Session 1
18:00–20:00 (120')

Poster 1.1: P. J. Bonofiglo
An Integrated Transport Model for Synthetic Fast Ion Losses in JET

Poster 1.2: K. Callaghan
Edge power balance and TGLF/TGYRO-predicted quasilinear thermal fluxes in ITER-Similar-Shape DIII-D Plasmas near the L-H Transition

Poster 1.3: C. Holland
Development of Compact Reactor Use Cases to Inform Transport Studies

Poster 1.4: I. Joseph
Guiding Center and Gyrokinetic Orbit Theory for Large Electric Field Gradients and Strong Shear Flows

Poster 1.5: M. Knolker
Pedestal Stability Analysis on MAST in preparation for MAST-U

Poster 1.7: R. Mukherjee
Modelling AUG scrape-off-layer plasma with full-f continuum Electromagnetic Gyrokinetic simulation

Poster 1.8: T. Odstrčil
Gyrokinetic modeling of carbon density peaking in DIII-D tokamak

Poster 1.9: D. M. Orlov
Predicting core transport in ITER baseline discharges with neon injections

Poster 1.10: A. Pankin
Bringing Anomalous Transport Models to the TRANSP Code as IMAS Components

Poster 1.11: M. Podesta
Sawtooth analysis through the reduced energetic particle transport 'kick' model on NSTX-U

Poster 1.12: A. M. Rosenthal
Calculation of Pedestal Transport Coefficients Using Direct Measurements of Neutral Emissivity on DIII-D

Poster 1.13: G. M. Staebler
A new saturation model for quasi-linear gyrokinetic turbulent transport

Poster 1.14: K. Tanaka
Isotope effects on particle transport in TCV ohmic discharge

Poster 1.15: C. Yoo
Automated analysis of turbulent electron temperature fluctuation measurements at ASDEX Upgrade

Poster 1.16: X. Zhang
Core-Edge Integrated Modeling for Neutral and Fast Ion Transport

Tuesday, September 7, 2021

11:30-12:00 TTF Co-Chair Candidate Introductions

12:30-12:35 Welcome

Integrated Modeling

Chair: J. Citrin

12:35-13:00 (15’ + 10’)

Speaker: I. Casiraghi

Overview of the first-principle integrated modelling of the main scenarios of the new Divertor Tokamak Test facility

13:00-13:25 (15’ + 10’)

Speaker: T. Luda

IMEP: an integrated model of tokamak plasma confinement based on engineering parameters

13:25-13:50 (15’ + 10’)

Speaker: A. Ho

JET hybrid ramp-up integrated modelling accelerated by QualiKiz neutral network and predictive analysis for JET tritium discharges

13:50-14:15 (15’ + 10’)

Speaker: P. Rodriguez-Fernandez

Bayesian optimization and automatic differentiation techniques towards full nonlinear predictions of tokamak performance

14:15-14:45 Discussion (30’)

14:45-15:30 (45’) Break

Isotope Studies

Chair: C. F. Maggi

15:30-15:55 (15’ + 10’)

Speaker: F. Auriemma

Validation of TGLF predictive capability on baseline high performance JET Deuterium plasmas and extrapolation to DT

15:55-16:20 (15’ + 10’)

Speaker: P. A. Molina-Cabrera

Changes in core electron temperature fluctuations and transport with isotopic mass in L-mode plasmas at ASDEX Upgrade

16:20-16:45 (15’ + 10’)

Speaker: L. Schmitz

Reducing the L-H Transition Power Threshold in ITER-Similar-Shape DIII-D Hydrogen Plasmas

16:45-17:15 Discussion (30’)

17:15-18:00 (45') Break

Poster Session 2
18:00–20:00 (120')

Poster 2.1: J. Ball
A non-twisting flux tube for local gyrokinetic simulations

Poster 2.2: C. Bourdelle
Physics model development and extensive validation of predictive integrated modeling

Poster 2.3: J. Buermans
1D description of transport in TOMAS ECRH plasma

Poster 2.4: L. Vermare
Radial electric field profile, magnetic topology and improvement of the confinement in the WEST tokamak

Poster 2.5: S. Coda
Progress in studies of the negative triangularity reactor option in TCV

Poster 2.6: D. Galassi
Effect of divertor poloidal leg length on SOL turbulence and transport

Poster 2.7: K. Hromasova
SOLPS-ITER modelling of the COMPASS tokamak SOL and comparison with kinetic simulations

Poster 2.8: A. Iantchenko
Gyrokinetic simulations of turbulence in JT-60SA with the GENE code

Poster 2.9: F. Jaulmes
Modelling of scenarios for scientific exploitation of the COMPASS Upgrade tokamak

Poster 2.10: B. Labit
H-mode power threshold experiments in mixed ion species plasmas on TCV

Poster 2.11: P. Macha
Modeling of the COMPASS Scrape-off Layer turbulence by GBS code

Poster 2.12: V. Ostuni
Confinement properties in the large aspect ratio, full Tungsten environment WEST tokamak

Poster 2.13: M. Peret
A model of interchange turbulent transport across separatrix with sheared flows

Poster 2.14: Y. Sarazin
Fidelity of Model Reduction: Implications of Near Marginality

Poster 2.15: R. Varennes
Impact of non-axisymmetric magnetic field perturbations on flows

Wednesday, September 8, 2021

12:30-12:35 Welcome

Pedestal and ELM-free Regimes: Session 1

Chair: I. Cziegler

12:35-13:30 **Plenary Talk** (40’ + 15’)
Speaker: E. Viezzer
Recent advances on stationary no-ELM and small-ELM regimes

13:30-13:55 (15’ + 10’)
Speaker: S. Saarelma
Ballooning mode stability in negative triangularity plasmas

13:55-14:20 (15’ + 10’)
Speaker: B. Chapman
The role of slab-ETG modes in determining the structure of JET-ILW pedestals with varying levels of power and fueling

14:20-14:50 Discussion (30’)

14:50-15:30 (40’) Break

Pedestal and ELM-free Regimes: Session 2

Chair: C. Holland

15:30-15:55 (15’ + 10’)
Speaker: A. O. Nelson
Current based experimental determination of inter-ELM pedestal MTMs

15:55-16:20 (15’ + 10’)
Speaker: R. Bielajew
Measurements of T_e fluctuations and linear gyrokinetic modeling in the I-mode and L-mode edge at ASDEX Upgrade

16:20-16:45 (15’ + 10’)
Speaker: W. McCarthy
Evidence of a GAM like potential structure and frequency impurity response for the Low Frequency Edge Oscillation in I-mode on Alcator C-Mod

16:45-17:15 Discussion (30’)

17:15-18:00 (45’) Break

Poster Session 3
18:00–20:00 (120')

Poster 3.1: J. Ball
A local gyrokinetic study of turbulent transport in a negative triangularity DEMO

Poster 3.2: N. Bonanomi
Effect of the isotope mass on tokamak turbulent transport: experimental observations and gyro-kinetic simulations

Poster 3.3: P. Cano Megias
Main ion temperature and rotation measurements at the plasma edge of ASDEX Upgrade and comparison to neoclassical theory

Poster 3.4: R. A. Chaban
Investigating Pedestal Structure with Isotopes

Poster 3.5: H. Chen
Excitation of Zonal Flow by Intermediate-Scale Electron Temperature Gradient Turbulence in Tokamak Plasmas

Poster 3.6: R. Coosemans
Influence of the diamagnetic drift contribution on the turbulent kinetic energy balance in isothermal interchange-dominated ExB turbulence in the scrape-off layer

Poster 3.7: R. Gerru
Local vorticity analysis in full-f gyrofluid model with FELTOR code

Poster 3.8: A. Kirjasuo
Source impact on density peaking in JET experiments

Poster 3.9: A. Krämer-Flecken
Plasma current crashes and the associated dynamics of the 5/5-island chain in W7-X

Poster 3.10: I. Cziegler
Coordinated Experimental and Computational Search for Zonal Flow Characteristics

Poster 3.11: M. Muraca
Reduced transport models for a tokamak flight simulator

Poster 3.12: R. Reksoatmodjo
SOPLS-ITER study of the relative roles of fueling and plasma transport on setting the density pedestal in high pedestal opacity H-mode on Alcator C-Mod

Poster 3.13: G. Suárez-López
The impact of the heating mix on DEMO plasmas

Poster 3.14: S. Biggs-Fox
Poloidal Structure of Zonal Flow Drive via Nonlinear Transfer Functions in Local Gyrokinetic Simulations

Poster 3.15: G. M. Weir
Core electron heat transport measurements on Wendelstein 7-X and correlation microwave diagnostics for operational Phase 2

Poster 3.16: C. F. B. Zimmermann
Analysis and modeling of momentum transport based on NBI modulation experiments at ASDEX Upgrade

Thursday, September 9, 2021

12:30-12:35 Welcome

Particle transport at the edge and SOL

Chair: K. Ida

12:35-13:00 (15' + 10')
Speaker: C. Schuster
Transient Particle Transport Studies in the Edge Plasma of ASDEX Upgrade

13:00-13:25 (15' + 10')
Speaker: D. J. Cruz-Zabala
Impact of the heating scheme on edge poloidal impurity asymmetries

13:25-13:50 (15' + 10')
Speaker: L. Horvath
Experimental analysis of ELM and inter-ELM particle transport in JET-ILW pedestals

13:50-14:20 Discussion (30')

14:20-15:00 (40') Break

Poster Session 4

15:00–17:00 (120')

Presenters:

Poster 4.1: T. Adkins
Electromagnetic plasma turbulence driven by electron-temperature gradient

Poster 4.2: Y. Camenen
Update on the Gyro-Kinetic Database project

Poster 4.3: F. J. Casson
The challenge of integrated scenario design for the STEP reactor

Poster 4.4: R. M. McDermott
Validation of low-Z impurity transport theory using boron perturbation experiments in ASDEX Upgrade

Poster 4.5: R. Davies
Eliminating the CFL timestep constraint in nonlinear gyrokinetics

Poster 4.6: H. G. Dudding
Improving the Isotope Scaling of Quasilinear Transport Models

Poster 4.7: A. V. Dudkovskaia
Neoclassical effects in electromagnetic gyrokinetic theory for the tokamak pedestal

Poster 4.8: Y. W. Enters
Inferring accurate velocity fields from turbulence diagnostics

Poster 4.9: L. Howlett
Turbulence in L-H transitions on MAST

Poster 4.10: P. G. Ivanov
Zonally dominated dynamics and the break-up of the Dimits state in ion-scale plasma turbulence

Poster 4.11: C. F. Maggi
Isotope Identity Experiments in JET with ITER-like Wall

Poster 4.12: J. F. Parisi
Role of electron temperature gradient turbulence and shaping in turbulent pedestal transport

Poster 4.13: B. S. Patel
Micro-stability properties of a high beta 1GW spherical tokamak

Poster 4.14: D. Power
Kinetic modelling of parallel transport in the tokamak scrape-off layer

Poster 4.15: A. Sladkomedova
Observation of coherent structures in MAST plasmas using BES

Poster 4.16: X. Q. Wu
Modelling investigation of the recycling effects on the upstream SOL density profile for tokamak divertor plasmas

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17:00-17:45 (45') Break

SOL to Core Connections and Compatibility

Chair: H. Reimerdes

17:45-18:40 **Plenary Talk** (40' + 15')
Speaker: A. W. Leonard
Compatibility of divertor heat flux control with detachment and core plasma performance

18:40-19:05 (15' + 10')
Speaker: M. Giacomin
Theory-based scaling laws of the near scrape-off layer width in L-mode discharges and density limit crossing, including comparison with experiments

19:05-19:30 (15' + 10')
Speaker: S. Thomas
Blob size and velocity distributions in the ASDEX Upgrade scrape-off layer and their role in determining the density profile using gas puff imaging

19:30-20:00 Discussion (30')

Friday, September 10, 2021

12:30-12:35 Welcome

New developments in theory and modeling of turbulent transport: Session 1

Chair: J-M Kwon

12:35-13:00 (15’ + 10’)
Speaker: S. Maeyama
Symmetrization and directional representation of nonlinear triad interactions in plasma turbulence

13:00-13:25 (15’ + 10’)
Speaker: B. J. Frei
A gyrokinetic moment-based method to simulate the turbulent plasma dynamics in the boundary of fusion devices

13:25-13:50 (15’ + 10’)
Speaker: G. Snoep
Validation of reduced-order turbulence modelling in the tokamak L-mode near-edge

13:50-14:15 (15’ + 10’)
Speaker: M. R. Hardman
The impact of cross-scale interactions on electron-temperature-gradient-driven instabilities in multiscale turbulence

14:15-14:45 Discussion (30’)

14:45-15:25 (40’) Break

New developments in theory and modeling of turbulent transport: Session 2

Chair: Y. Camenen

15:25-15:50 (15’ + 10’)
Speaker: D. A. St-Onge
Spectrally accurate global-local gyrokinetic simulations of turbulence in tokamak plasmas

15:50-16:15 (15’ + 10’)
Speaker: B. F. McMillan
Impacts of high β and fast particles on turbulence in spherical tokamak reactors

16:15-16:40 (15’ + 10’)
Speaker: M. Yoo
Collisionless plasma transport in stochastic magnetic fields connecting to wall boundary

16:50-17:20 Discussion (30’)

17:20-17:50 Closing and election results