

Highlights from the 2006 Transport Task Force Meeting

Abstracts available on <http://www.mfescience.org/TTF2006/> Presentations will appear soon.

Plenary session featured:

Martin Greenwald Falling between the cracks: coupling between transport in the SOL, Edge and Core

Chris Hegna Issues of Overlap Interest in MHD and Transport

Pat Diamond Issues in Transport for Burning Plasmas

Included suggestions for addressing some topics on the long 'laundry list'.

Contributed presentations:

Ding W.X. Magnetic Fluctuation-Induced Momentum and Charge Transport in MST
Serious turbulent magnetic transport.

Candy J. Transport From ETG Turbulence Including Non-Adiabatic Ion Dynamics

Gyrokinetic treatment of both ions and 'heavy' electrons, resolving $k_{\perp}\rho_i \sim 1$ and $k_{\perp}\rho_e \sim 1$.

Kinetic ion treatment reduces the transport caused by modes with $k_{\perp}\rho_e \sim 0.1$ to 1.

Large transport with magnetic shear > 0.4 does not materialize (streamer regime).

ExB shear can greatly reduce ion transport (from $k_{\perp}\rho_i \leq 1$ modes), but electron transport survives (dominated by higher $k_{\perp}$ modes) with only a modest reduction.

New results are based on physics not in Lin's GTC simulations – no physics link.

Bateman G. Effect of NTMs and Sawtooth Oscillations on Confinement in Tokamaks
Island widths estimated. Comparisons with JET & DIII-D

Clairet F. Parametric study of turbulent particle transport in Tore Supra
Experimental study relates density and temperature gradients to particle transport.

Estrada-Mila C. Large Turbulent Transport of Alpha Particles in Reactor Plasmas
Turbulence generated by thermal population could cause significant alpha transport.

Holland C. Quantitative Studies of Nonlinear Interactions Between Shear Flows and
Turbulence in Experiment and Simulation
**Bi-coherence analysis of BES data from DIII-D indicates GAMs play an important role in
turbulent dynamics.**

Sen A.K. Observation and Identification of Zonal Flows in a Basic Experiment

Gentle K.W. Controlled Shear Flow Stabilization of Turbulence
In Helimak

Ernst D.R. Nonlinear Gyrokinetic Simulations of TEM Turbulence Compared with Phase
Contrast Imaging Density Fluctuation Measurements
Diagnostic simulation of the PCI system on C-Mod

Mikkelsen D.R. Gyrokinetic simulations of NSTX L-mode plasmas
To be presented at an NSTX physics meeting later in April

Rice J.E. Inter-Machine Comparison of Spontaneous Rotation

ITPA meeting at PPPL, 24-27 April will feature rotation studies.

Stotler D.P. An Example "Reference Problem" for Code Verification

Laid groundwork for documenting code verification/validation work.

Dubuit N. Fluid simulations of turbulent impurity transport

Will visit PPPL Tuesday 11 April.

Uses global gyrofluid code TRB to simulate impurity transport in TORE SPURA.

McKee G.R. Structure and Scaling Properties of Rosenbluth-Hinton Zonal Flows and Geodesic Acoustic Modes in the Core of the DIII-D Tokamak

Characterization of zonal flows and GAMs in periphery of DIII-D.

Kubota S. Turbulence Measurements on NSTX Using Millimeter-Wave Reflectometry

Stutman D Perturbative Electron Transport Experiments in NSTX

Zhurovich K. Study of triggering mechanisms for internal transport barriers in Alcator C-Mod

Estimated Ti profile is flattened inside off-axis ICRH; could cause ITB in C-Mod.

Greenfield C.M. Experimental Tests of the Paleoclassical Electron Transport Model

Paleoclassical transport leads to a rough semblance of DIII-D's reality in ohmic and L-mode.

Edge group:

Maqueda R.J. Blob and edge turbulence characteristics across the L-H transition in NSTX

Snyder P.B. Nonlinear Dynamics and Transport Mechanisms for ELMs

Moyer R.A. Pedestal Transport Changes Induced by Edge Resonant Magnetic Perturbations

Rognlien T.D. Spanning collisionality regimes with an edge Er model

Russell D.A. Reduced models of turbulent transport in the edge and scrape-off layer

Staebler G.M. Extending the Trapped Gyro-Landau Fluid Equations to General Geometry With Electromagnetic and Collision Terms

Gyrofluid, fully electromagnetic, linear stability analysis for between shots analysis.

Strauss H. R. Nonlinear Two Fluid ELM Simulations