



Contribution ID: 74

Type: **Poster**

TH/P7-02: Progress on Theoretical Issues in Modelling Turbulent Transport

Friday, 12 October 2012 08:30 (4 hours)

Predictive modelling of turbulent transport is essential to the success of ITER and DEMO. Since first principle simulations cannot yet confront the complexities of this task, some model reduction is necessary, both for utility and for understanding. Two critical issues in transport model design are: a.) the structure of mean field theory for Kubo number larger than or order of unity, b.) the nonlinear dynamics of flows, both zonal and toroidal. Here we describe recent progress in: i.) the mean field theory of drift wave turbulent transport for Kubo number larger than or order of unity, ii.) the calculation of fully evolved zonal flow dynamics. iii.) modelling intrinsic torque which drives toroidal rotation, and calculating the efficiency of the generation process. A unifying theme of those studies is their formulation in terms of phase space density correlation evolution.

Country or International Organization of Primary Author

USA

Primary author: Mr KOSUGA, Yusuke (USA)

Co-authors: Dr WANG, Lu (WCI Center for Fusion Theory); Prof. DIAMOND, Patrick (University of California, San Diego); Dr GÜRCAN, Özgür (LPP, Ecole Polytechnique)

Presenter: Mr KOSUGA, Yusuke (USA)

Session Classification: Poster: P7

Track Classification: THC - Magnetic Confinement Theory and Modelling: Confinement