



Contribution ID: 624

Type: **Poster**

TH/P7-15: Steady State Particle-In-Cell Simulations of Microturbulence in Tokamaks

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

The use of a generalized weight-based particle simulation scheme suitable for simulating Tokamak plasmas, where the zeroth-order inhomogeneity is important is presented. The scheme which is a generalization of the perturbation schemes developed earlier for particle-in-cell (PIC) simulations, is now capable of handling the full distribution of particles. The new scheme can simulate both the perturbation (δf) and the full-F within the same code. Its development is based on the concept of multi-scale expansion which separates the scale lengths of back-ground inhomogeneity from those associated with the perturbations. We will report on the simulations studies, carried out on the state-of-the-art massively parallel computers, for the Ion Temperature Gradient (ITG) instabilities in the presence of zonal flows and a constant inhomogeneity drive. The physics of the steady state transport in tokamaks will also be discussed.

Country or International Organization of Primary Author

India

Primary author: Mr GANESH, Rajaraman (India)

Co-authors: Dr MANICKAM, Janardhan (Princeton Plasma Physics Lab, NJ, USA); Dr ETHIER, Stephane (Princeton Plasma Physics Lab, NJ, USA); Dr LEE, Wei-li (Princeton Plasma Physics Lab, NJ, USA)

Presenter: Mr GANESH, Rajaraman (India)

Session Classification: Poster: P7

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