
Multi-particle collision simulations of energy transport in weakly collisional plasmas

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Abstract

In this talk I will review the multi-particle collision (MPC) technique, originally developed in the context of mesoscopic hydrodynamics, and its application to the modellization of coulomb collisions in plasma simulations with Particle-In-Cell codes. I will report some results on anomalous transport in 1D models of parallel flux in fusion plasmas and their comparison with the outcome of fluid models with non-local closures. In addition, some application to astrophysical systems will be presented.

Keywords: Transport, Fusion plasmas, numerical methods, anomalous diffusion

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