Abstract Submitted
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A velocity-dependent anomalous radial transport model for (2-D, 2-V) kinetic transport codes[1] KOWSIK BODI, SERGEI KRASHENINNIKOV, UCSD, RON COHEN, TOM ROGNLIEN, LLNL, ESL TEAM — Plasma turbulence constitutes a significant part of radial plasma transport in magnetically confined plasmas. This turbulent transport is modeled in the form of anomalous convection and diffusion coefficients in fluid transport codes. There is a need to model the same in continuum kinetic edge codes [such as the (2-D, 2-V) transport version of TEMPEST, NEO, and the code being developed by the Edge Simulation Laboratory] with non-Maxwellian distributions. We present an anomalous transport model with velocity-dependent convection and diffusion coefficients leading to a diagonal transport matrix similar to that used in contemporary fluid transport models (e.g., UEDGE). Also presented are results of simulations corresponding to radial transport due to long-wavelength ExB turbulence using a velocity-independent diffusion coefficient. A BGK collision model is used to enable comparison with fluid transport codes.

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