Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Implementation of an anomalous radial transport model for continuum kinetic edge codes[1] K. BODI, S.I. KRASHENINNIKOV, UCSD, R.H. COHEN, T.D. ROGNLIEN, LLNL, ESL TEAM — Radial plasma transport in magnetic fusion devices is often dominated by plasma turbulence compared to neoclassical collisional transport. Continuum kinetic edge codes [such as the (2d,2v) transport version of TEMPEST and also EGK] compute the collisional transport directly, but there is a need to model the anomalous transport from turbulence for long-time transport simulations. Such a model is presented and results are shown for its implementation in the TEMPEST gyrokinetic edge code. The model includes velocity-dependent convection and diffusion coefficients expressed as a Hermite polynominals in velocity. The specification of the Hermite coefficients can be set, e.g., by specifying the ratio of particle and energy transport as in fluid transport codes. The anomalous transport terms preserve the property of no particle flux into unphysical regions of velocity space. TEMPEST simulations are presented showing the separate control of particle and energy anomalous transport, and comparisons are made with neoclassical transport also included.

[1]Work performed under auspices of US DOE by UC LLNL under contract No. W-7405-ENG-48.

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Date submitted: 20 Jul 2007 Electronic form version 1.4