Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

Adding Collisional Energy Diffusion to the GS2 Gyrokinetic Code[1] V. NAVKAL, University of Pennsylvania, D.R. ERNST, Massachusetts Institute of Technology, W.D. DORLAND, University of Maryland — The GS2 gyrokinetic code[2,3] solves the nonlinear gyrokinetic-Maxwell equations to model the time evolution of the distribution function. Present gyrokinetic continuum codes utilize a Lorentz collision model. We are upgrading the collision operator in GS2 to include energy diffusion and appropriate conserving terms. The distribution function in GS2 is calculated from initial values using a fully implicit scheme. Our implementation of collisional energy diffusion is also fully implicit, and utilizes a parallel processing architecture. The new operator will be tested using simple initial conditions with known solutions. The impact of the new terms on thresholds for TEM and ITG instability modes will then be examined.

[1]Work supported by U.S. Dept. of Energy National Undergraduate Fellowship Program.
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Date submitted: 21 Jul 2006 Electronic form version 1.4