Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Studies of ELMs and RMPs with M3D[1] H.R. STRAUSS, BERNHARD HIENTZSCH, G.Y. PARK, C.S. CHANG, NYU, L. SUGIYAMA, MIT — Several recent applications of M3D are presented. Studies are in progress in the penetration of resonant magnetic perturbations (RMP) which have been found to stabilize edge localized modes (ELM). In a two fluid MHD model, RMPs did not provide ELM stabilization in studies conducted so far. Instead the plasma relaxes toward a 3D equilibrium. The ELM stabilization evidently comes from kinetic modification of the pressure and current profiles. Simulations with the XGC kinetic neoclassical code suggest that RMPs are screened from the plasma. Calculation of screening caused by plasma rotation is in progress. In other work, ELM benchmarking simulations will be be presented. In linear simulations, M3D, NIMROD, and ELITE were found to be in reasonable agreement. Preliminary application of spectral elements to ELM simulations will be presented.

[1]supported by USDOE.

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Date submitted: 21 Jul 2007 Electronic form version 1.4