Application of GEM Code for Experimentally-Realistic Tokamak Cases

G. REWOLDT, W.M. TANG, Princeton Plasma Physics Lab., Y. CHEN, S.E. PARKER, U. Colorado Boulder CIPS — The GEM code is a gyrokinetic electromagnetic nonlinear particle-in-cell simulation code[1]. It has recently been extended to be radially global[2], using the Miller toroidal MHD equilibrium[3]. In recent work, the GEM code has been interfaced with the TRANSP experimental data system[4]. In particular, the GEM code calculations can now include experimentally-derived TRANSP density and temperature profiles for the electron and background ion species, as well as for an impurity species and a hot beam ion species, with trapped electrons and electron collisions, and including self-generated and externally-driven flow. Preliminary results will be presented for tokamaks such as NSTX and DIII-D.


1Work supported by DOE SciDAC GPSC and U.S. DOE Contract No. DE-AC02-76-3073