Real geometry gyrokinetic PIC computations of ion turbulence in advanced tokamak discharges with SUMMIT/PG3EQ_NC[1] JEAN-NOEL LEBOEUF, VIKTOR DECYK, TERRY RHODES, UCLA, ANDRIS DIMITS, LLNL, DAN SHUMAKER, LLNL — Development of the PG3EQ_NC module within the SUMMIT gyrokinetic PIC FORTRAN 90 framework is largely completed. It provides SUMMIT with the capability of performing 3D nonlinear toroidal gyrokinetic computations of ion turbulence in real DIII-D geometry. PG3EQ_NC uses local, field line following, quasi-ballooning coordinates and direct interface with DIII-D equilibrium data via the EFIT and ONETWO codes. In addition, Holger Saint John's PLOTEQ code is used to determine the (r,z) position of each flux surface. The thus initialized SUMMIT computations have been carried out for shot #118561 at times 01450 and 02050 at many of the 51 flux surfaces from the core to the edge. Linear SUMMIT results will be compared to available data from calculations with the GKS code for the same discharges. Nonlinear SUMMIT results will also be compared with scattering measurements of turbulence, as well as with accessible measurements of fluctuation amplitudes and spectra from other diagnostics.

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