Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Effects of 3D Magnetic Perturbations on DIII-D Reconstructed Equilibria[1] L.L. LAO, M.S. CHU, A. COLLIER, T.E. EVANS, M.J. SCHAFFER, E.J. STRAIT, General Atomics, Q. REN, ASIPP, R. SRINIVASAN, IPR, Y. LIU, DUT — Non-axisymmetric perturbation magnetic fields are routinely applied in DIII-D experiments to study and control MHD modes. The effects of the perturbation fields on the background 2D equilibrium are studied using a set of recent DIII-D single- and double-null H-mode discharges with varying amount of I-coil perturbations. The reconstructed vertical positions of the plasma separatrix boundary at the DIII-D Thomson diagnostic viewing chord are compared against those estimated from the measured edge electron temperature profiles. For lower single-null and double-null plasmas, the reconstructed vertical boundary locations generally agree with those estimated from the edge temperature profiles within $\sim$1 cm. For upper single-null plasmas, the differences in the Thomson boundary locations tend to be greater. The effects of the perturbation fields on the 2D reconstructed equilibria are also being analyzed using a set of 3D codes TRIP3D without and MARS-F and VMOM3D with plasma response. Details will be presented.

[1]Work supported by US DOE under DE-FC02-04ER54698 and DE-FG02-95ER54309.

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Date submitted: 16 Jul 2010 Electronic form version 1.4