

Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

DIII-D Equilibrium Reconstructions with New 3D Magnetic Probes¹ LANG LAO, E.J. STRAIT, N.M. FERRARO, J.R. FERRON, J.D. KING, X. LEE, O. MENEGHINI, A.D. TURNBULL, GA, Y. HUANG, J.G. QIAN, ASIPP, A. WINGEN, ORNL — DIII-D equilibrium reconstructions with the recently installed new 3D magnetic diagnostic are presented. In addition to providing information to allow more accurate 2D reconstructions, the new 3D probes also provide useful information to guide computation of 3D perturbed equilibria. A new more comprehensive magnetic compensation has been implemented. Algorithms are being developed to allow EFIT to reconstruct 3D perturbed equilibria making use of the new 3D probes and plasma responses from 3D MHD codes such as GATO and M3D-C1. To improve the computation efficiency, all inactive probes in one of the toroidal planes in EFIT have been replaced with new probes from other planes. Other 3D efforts include testing of 3D reconstructions using V3FIT and a new 3D variational moment equilibrium code VMOM3D. Other EFIT developments include a GPU EFIT version and new safety factor and MSE-LS constraints. The accuracy and limitation of the new probes for 3D reconstructions will be discussed.

¹Supported by US DOE under DE-FC02-04ER54698 and DE-FG02-95ER54309.

Lang Lao
GA

Date submitted: 27 Oct 2015

Electronic form version 1.4