Abstract Submitted for the 50th Annual Meeting
Division of Plasma Physics
November 17–21, 2008, Dallas, Texas

Category Number and Subject:

[ ] Theory [X] Experiment

ITER Vertical Stability Guidance from Multi-machine Experiments,* D.A. Humphreys, N. Eidietis, G.L. Jackson, J.A. Leuer, M.W. Walker, A.S. Welander, *GA*, T.A. Casper, L.L. LoDestro, W.H. Meyer, L.D. Pearlstein, *LLNL*, M. Ferrara, I.H. Hutchinson, S.M. Wolfe, *MIT*, D.A. Gates, E. Kolemen, *PPPL*, J. Lister, *EPFL*, F. Sartori, *Euratom/UKAEA*, W. Treutterer, *IPP-Garching* – Sufficiently robust vertical stability control is critical to ITER, in which the consequences of a vertical displacement event (VDE) disruption can be very severe. Experimental results from many devices have provided guidance to determine the necessary level of robustness, and theoretical analysis has quantified the tradeoffs inherent in various design choices. The maximum controllable displacement normalized by minor radius is shown to be a useful metric for performance, and must be greater than 4% for robustness to VDEs in operating machines. Analysis of controllability limits, axisymmetric control performance, noise environments, and disturbances in operating devices including Alcator C-Mod, DIII-D, NSTX, TCV, and JET will be presented.

*Work supported in part by the US DOE under DE-FC02-04ER54698, DE-AC52-07NA27344, and DE-AC02-76CH03073.