

Abstract Submitted for the Forty-Seventh Annual
Meeting
Division of Plasma Physics
October 24–28, 2005, Denver, Colorado

Category Number and Subject: 5.6.2. DIII-D Tokamak

Theory Experiment

Pedestal Stability Changes and Boundary Plasma Response During ELM Suppression by RMP in DIII-D,* M.E. Fenstermacher *LLNL*, T.E. Evans, T.H. Osborne, P.B. Snyder, K.H. Burrell, R.J. Groebner, A.W. Leonard *GA*, J.A. Boedo, R.A. Moyer, *UCSD*, M. Groth, C.J. Lasnier *LLNL*, L. Zeng *UCLA* – ELM suppression by application of $n=3$ edge resonant magnetic perturbations (RMP) has been obtained for both high and low collisionality plasmas in DIII-D using internal coils. The effect of the RMP on pedestal stability and on the divertor plasma appears to be different in the two cases. In the high collisionality case small islands are created in the edge, pedestal plasma profiles and the divertor radiation structure do not change much, but the plasma rotation is substantially reduced. At low collisionality the edge is predicted to be stochastic, n_e and T_e pedestals and the divertor radiation profiles are modified significantly, and the plasma rotation initially increases. The pedestal parameters in this case show several similarities with QH-mode but no EHO is observed. The implications of these differences on the pedestal stability and the divertor plasma will be presented.

*Work supported by US DOE under W-7405-ENG-48, DE-FC02-04ER54698, DE-FG02-04ER54758, and DE-FG03-01ER54615.

Oral Poster