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Theory Experiment

Testing Pedestal Models for Joint Research Target on DIII-D,* R.J. Groebner, P.B. Snyder, T.H. Osborne, S.P. Smith, A.W. Leonard, B.D. Bray, T.M. Deterly, C. Liu, R.L. Boivin, J.S. deGrassie, R. Prater, *General Atomics*; D. Eldon, *UCSD*; T.L. Rhodes, L. Zeng, J.C. Hillesheim, *UCLA*; Z. Yan, G.R. McKee, *U Wisc* – As part of the FY2011 DOE Joint Research Target on Pedestal Physics, tests are being performed on DIII-D for gyrokinetic modes that have been proposed as physics mechanisms for controlling the H-mode pedestal structure. These modes include kinetic ballooning modes (KBM), candidates for limiting the total pedestal pressure gradient, ion temperature gradient modes (ITGM), candidates for limiting the T_i gradient at the pedestal top and electron temperature gradient modes (ETGM), candidates for limiting the T_e gradient both in the pedestal and on top of the pedestal. The theoretical control parameters for these modes are α_{MHD} for KBM, η_e for ETGM and η_i for ITGM. Experiments are being performed in DIII-D to determine if measured values of these parameters are close to the theoretical threshold values for the linear onset of these modes.

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