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Testing Pedestal Models for Joint Research Target on DIII-D


— 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 \( \alpha_{MHD} \) for KBM, \( \eta_e \) for ETGM and \( \eta_i \) 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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