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Theory Experiment

The Effect of Plasma Shaping on Edge Profiles and Stability During QH-Mode Operation on DIII-D,* W.P. West, A.W. Leonard, B.D. Bray, K.H. Burrell, P. Gohil, T.H. Osborne, P.B. Snyder, D.M. Thomas, *GA*, T.A. Casper, *LLNL*, E.J. Doyle, G. Wang, L. Zeng, *UCLA* – Edge profiles of electron density and temperature, ion temperature, C^{+6} density, and magnetic field pitch angle were measured in ELM-free QH mode plasmas as the triangularity and squareness of the separatrix was varied. Preliminary analysis indicates that the pressure at the top of the pedestal increases with stronger shaping. The profiles are used along with magnetic and motional Stark effect data in a reconstruction of the plasma equilibrium that includes the edge bootstrap current. Generally good agreement between the reconstructed equilibria and the Li beam polarimetry measurements of the pitch angle in the region of the pedestal is found. Stability of these equilibria against coupled peeling/ballooning modes will be presented.

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