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Electron Profile Stiffness and Critical Gradient Studies in an L-mode Discharge in DIII-D[1] J.C. DEBOO, K.H. BURRELL, C.C. PETTY, S.P. SMITH, General Atomics, A.E. WHITE, MIT, C. HOLLAND, UCSD, E.J. DOYLE, J.C. HILLESHEIM, T.L. RHODES, L. SCHMITZ, G. WANG, L. ZENG, UCLA, G.R. MCKEE, U. Wisc.-Madison — Several heat flux scans have been performed in an L-mode discharge in DIII-D with the goal of investigating the stiffness and critical gradient in the electron channel at $\rho = 0.6$, 0.4 and 0.3. The heat flux scans employed 6 gyrotrons operating for 3.5 s with a shot-by-shot variation in heat flux achieved by moving 1 gyrotron/shot from just outside to just inside the region of interest. The stiffness was studied as a function of 4 different toroidal rotation conditions, low rotation with ECH only, higher rotation with co-NBI and counter-NBI, and lower rotation with balanced-NBI. Preliminary results indicate that toroidal rotation does not appear to play a strong role in determining the stiffness of the electron profile. For the ECH only condition at $\rho = 0.6$ very low values of temperature gradient were obtained, well below the critical gradient estimated by the gradient where the heat flux projects to zero.

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