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Evidence for the Role of Velocity Shear on the ∇B Drift Effect on the LH Transition[1] T.N. CARLSTROM, K.H. BURRELL, R.J. GROEBNER, A.W. LEONARD, GA, C. FENZI, G.R. MCKEE, U. Wisconsin, R.A. MOYER, UCSD, T.L. RHODES, UCLA — The direction of the ∇B drift is well known to have a large effect on the H-mode power threshold, P_{th}. Recent measurements from DIII-D indicate that shear in the group velocity of the edge density fluctuations is at least partly responsible for this effect. High (low) shear in the poloidal velocity is associated with the low (high) P_{th}. Comparisons at fixed heating power and density, but with opposite ∇B drift directions with respect to the X-point location, resulted in edge profiles of density and temperature, as well as amplitudes of density and potential fluctuations, that were nearly identical. This indicates that the specific values of edge temperature, beta, or their gradients are not the only important parameters in determining P_{th}. Spatially resolved edge density fluctuation measurements show a change in the poloidal group velocity of the fluctuations when the x-point location was changed. These results suggest that shear in the edge poloidal group velocity of the turbulence is important in determining P_{th}.

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☐ Prefer Oral Session
☒ Prefer Poster Session

Special instructions: 1st poster in Transport Edge Session (before Moyer)

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