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Thermal Ion Orbit Loss and Intrinsic Toroidal Velocity Near the Last Closed Flux Surface[1] J.S. DEGRASSIE, General Atomics, J.A. BOEDO, S.H. MULLER, University of California-San Diego — Recent Mach probe measurements in DIII-D have revealed a relatively universal co-I_p directed, localized toroidal velocity of the main D^+ ion in the edge of DIII-D discharges, centered near the outboard last closed flux surface. The ion orbit loss model [1] formerly applied to the region near the top of the pedestal in H-mode discharges has been extended to the edge, and into the scrape-off layer. This model gives relatively good agreement with the width of this intrinsic velocity peak, and with the magnitude given uncertainties in the probe velocity measurements due to uncertainties in T_e and T_i. The extensions of the former model include limiting surfaces and a radial electric field.

[1] J.S. deGrassie et al., Nucl. Fusion **49**, 085020 (2009).

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