Abstract Submitted
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Ion Orbit Loss Effect on Pedestal Structure[1] W.M. STACEY, Georgia Tech — The effect of ion orbit loss of thermal ions and the compensating return ion current directly on the toroidal and poloidal rotation velocity profiles, and thereby indirectly on the radial electric field, density and temperature profiles in the plasma edge, is investigated for the purpose of understanding the extent to which ion orbit loss determines the edge pedestal structure. Illustrative calculations for DIII-D [1] high-confinement H-mode plasmas are presented and compared with experimental results. Ion orbit loss of thermal ions and the compensating return ion current is found to have a significant effect on the structure on the profiles of poloidal rotation and radial electric field, as well as the ion particle pinch, in the edge plasma. These, in turn, are instrumental in determining pressure, density and temperature profiles. Taking ion orbit loss into account is also found to affect the interpretation of transport parameters from measurements in the edge.

[1] J.L. Luxon, Nucl. Fusion **42**, 614 (2001).

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