Abstract Submitted
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Magnetic field scaling of turbulence and transport in the Large Plasma Device[1] L. YAN, M. GILMORE, University of New Mexico, N.A. CROCKER, W.A. PEEBLES, T. CARTER, University of California, Los Angeles, G.Y. ANTAR, University of California, San Diego — Understanding the magnetic field dependence of turbulent-driven transport is a topic of significant interest to the plasma community. The LArge Plasma Device (LAPD: He^+ plasmas, a = 50cm, L = 17 m, $n_{e0} \sim 1.5\ 10^{12}$ cm^{-3}, $T_{e0} \sim 15$eV) at UCLA is ideally suited for such an investigation since it is highly reproducible and allows precise variation of magnetic field over a large dynamic range. A detailed study in the edge of LAPD has been performed where magnetic fields are varied from 500 to 1500 G, in 50 G increments. A peak in radial particle transport is observed, where the density gradient is largest and sheared azimuthal flow is maximum. This peak transport flux increases with reducing magnetic field. At the same location the turbulent correlation length also increases at lower magnetic field. Further analysis will include measurement of the fluctuation probability distribution functions and the application of conditional averaging to search for large scale structures such as avaloids.

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