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Theory Experiment

Edge Density Characteristics in DIII-D ELM Suppressed Operations,* L. Zeng, E.J. Doyle, G. Wang, T.L. Rhodes, W.A. Peebles, *UCLA*, T.E. Evans, T.H. Osborne, *General Atomics*, R.A. Moyer, *UCSD*, M.E. Fenstermacher, *LLNL* — Large Type-I ELMs have been suppressed using the internal MHD coils in DIII-D. In these ELM suppressed operations, the characteristics of edge density profiles and fluctuations have been investigated using high-resolution reflectometry and FIR scattering. At low collisionality, reductions in density pedestal height and gradient indicate enhanced particle transport. Increased density fluctuations measured by FIR and reflectometry are consistent with enhanced transport. At high collisionality, the SOL density profile is modified by the irregular \bar{D}_α oscillations during the I-coil phase. Although the pedestal gradient decreases slightly the pedestal height remains unchanged. There is no significant increase of density fluctuations, however, enhanced magnetic fluctuations are observed. The results may imply strong transient Type-I ELM-induced transport is replaced by the lower impact transport associated with irregular \bar{D}_α oscillations during the I-coil phase.

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