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[ ] Theory [X] Experiment

Particle and Energy Transport in the SOL of DIII-D and NSTX,* J.A. Boedo, D.L. Rudakov, *UCSD,* A.L. Roquemore, H. Kugel, S.J. Zweben, *PPPL,* R. Maingi, *ORNL*, J.G. Watkins, *SNL*, W.P. West, *GA* –While intermittent transport is the only SOL radial transport vehicle in L-mode, knowing the relative importance of inter-ELM vs ELM particle flux in H-mode is crucial. Density scans in DIII-D show that ELMs account for ~90% of the wall particle flux at low Greenwald fraction (f_g~0.4), decreasing to ~30% at f_g~1.0. Both intermittent transport and ELMs are comprised of filaments of hot, dense plasma (n_e ~ 1x10^{13} cm^{-3}, T_e~100 eV) originating at the pedestal and convective in nature, leaving the pedestal region at speeds of ~0.5-1 Km/s and losing heat and particles by parallel transport as they travel through the SOL. The intermittency and ELM heat is quickly lost, resulting in temperature radial decay lengths ~1-2 cm, but the particles are not, resulting in radial density decay lengths ~4-13 cm that increase inversely with SOL colissionality. In DIII-D the intermittency decays in both intensity and frequency in H-mode while it only decays in frequency in NSTX.

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