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☐ Theory    ☒ Experiment

**SOL and Pedestal Density Profile Evolution During DIII-D ELMy H-mode Operation,\*** L. Zeng, G. Wang, E.J. Doyle, T.L. Rhodes, W.A. Peebles, *UCLA*, M.E. Fenstermacher, *LLNL*, T.E. Evans, *GA*, J.A. Boedo *UCSD* — A fast profile reflectometer has been used to study the detailed characteristics of scrape-off-layer (SOL) and pedestal density profile evolution in DIII-D ELMy H-mode plasmas with high temporal (down to 0.01~ms) and spatial (~4 mm) resolution. Results show a significant enhancement in radial particle transport to the outer vessel wall during Type-I ELMs. The radial particle transport time (~0.14 ms) becomes comparable to the parallel transport time, because of the high radial velocity (~600 m/s) of the SOL profile expansion. The dynamics vary from ELM-to-ELM. Observations indicate that ELM effects on particle transport decrease with the pedestal density. Finally, during ELM-suppressed H-mode operation with a stochastic magnetic boundary, the radial extent of observed SOL profile modifications are significantly reduced and do not extend to the vessel wall. The profiles are steeper, quite different from the SOL changes associated with Type-I ELMs.

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