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☐ Theory ☒ Experiment

Effects of ELMs and ELM Suppressed Operation on Density Profiles in DIII-D,* L. Zeng, E.J. Doyle, G. Wang, T.L. Rhodes, W.A. Peebles, *UCLA*, T.E. Evans, A.W. Leonard, *GA* – The dynamics of density perturbations associated with edge localized modes (ELMs) and ELM suppressed operation have been investigated on DIII-D using an upgraded profile reflectometer system with high temporal ($\geq 10 \mu\text{s}$) and spatial ($\sim 4 \text{ mm}$) resolution, and with a density coverage of $0\text{--}6 \times 10^{19} \text{ m}^{-3}$. During Type I ELMs, a large radial expansion velocity ($\sim 600 \text{ ms}$) has been observed, and the radial particle transport time is comparable to the parallel transport time. The scaling of pedestal density loss, pedestal width, density scale length and the radial particle flux vs. n_e and q_{95} will be presented for both Type-I and III ELMs. ELM suppressed operation has been achieved by the use of resonant magnetic perturbations, where it has been observed that the radial extent of the SOL profile modification does not reach the vessel wall. A detailed study of density profile and fluctuation behavior during Elm-suppressed operation will be presented.

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☐ Oral ☐ Poster