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☐ Theory ☒ Experiment

Use of TGLF Model to Study Pedestal Particle Transport in DIII-D,* R.J. Groebner, G.M. Staebler, A.W. Leonard, T.H. Osborne, *General Atomics*; L.W. Owen, *ORNL*; D.J. Battaglia, *PPPL* –The TGLF transport model is used to study particle transport in the edge H-mode pedestal in DIII-D and to answer the question: Is the structure of the density pedestal due to fluctuations that drive an inward particle flux that nearly balances an outward diffusive flux? TGLF is used to evaluate a theoretical form for the electron particle flux that contains a term due to a diffusive term driven by the density gradient, an off-diagonal diffusive term driven by the temperature gradient, which typically causes an inward pinch, and a residual flux driven by the curvature drift and Landau damping. The residual flux is expected to be small in the pedestal region compared to the other two terms. Initial simulations with this model have shown a large inward pinch nearly balanced by diffusion in the pedestal. Simulations of density pedestal build-up during ELM-free H-mode will be made to determine if the TGLF predicted particle flux is consistent with experiment and if the model predicts large competing convective and diffusive fluxes.

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