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Theory Experiment

H-mode Particle Transport Measurement and Comparison to TGLF in DIII-D* L. Zeng, E.J. Doyle, L. Schmitz, T.L. Rhodes, W.A. Peebles, *UCLA*; S. Mordijck, *William & Mary*; G.M. Staebler, C.C. Petty, *GA* – H-mode particle transport has been measured in DIII-D using an upgraded high resolution profile reflectometer and gas-puff perturbative transport techniques. It is observed that the electron density peaking is insensitive to collisionality in DIII-D. Initial analysis indicates the n_e peaking factor decreases in H-mode plasmas with dominant ECH heating, versus NBI-only heated cases. In addition, longer density decay times are observed with dominant ECH heating compared with NBI-only. In some of these cases, particle transport changes are associated with changes in the dominant turbulence mode from ITG to TEM. It is also observed that the density decay time associated varies with the magnitude of the NBI input torque, implying a correlation between particle and momentum transport. The quantitative particle transport rates are under analysis, and will be compared to TGLF modeling. Turbulence measurement results will be presented also. The results will help to understand turbulence mechanism of particle transport and the relation to momentum transport.

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