Abstract Submitted
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Sensitivity of core transport to parallel velocity gradient in DIII-D H-modes[1] W. GUTTENFELDER, B.A. GRIERSON, PPPL, D.R. ERNST, A. MARINONI, MIT, A.M. DIMITS, LLNL, R. BRAVENEC, Fourth State Research, J.M. CANDY, G.M. STAEBLER, GA — In DIII-D QH modes with NBI+ECH, nonlinear GYRO simulations of density-gradient-driven trapped electron mode (TEM) turbulence at ρ=0.3 predict thermal fluxes and synthetic Doppler backscattering spectra that agree with experimental measurements within uncertainties [1]. With only NBI heating, TEM simulations are also found to agree with experimental measurements, but only if the destabilizing influence of the parallel velocity gradient (PVG) is included. The influence of the PVG increases the predicted transport in this case by lowering the effective density gradient threshold, as the rotation shear ($u' = -R^2\nabla\Omega/c_s$=3.4) is much larger than the case with ECH added (u'=2.0). A similar destabilizing influence of PVG has been predicted in high-β_{pol} discharges [2] with similar values of rotation shear ($u' > 3$), which will also be presented.

[1] D.R. Ernst, IAEA 2014; APS 2015
[2] A.M. Garofalo, IAEA 2014

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