Abstract Submitted
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Validation of the Combined TGLF and NEO Transport Models on DIII-D[1] J.E. KINSEY, R.W. HARVEY, YU.V PETROV, CompX, G.M. STAEBLER, C.C. PETTY, E.A. BELLI, General Atomics — Recently, the ExB shear physics in the Trapped Gyro-Landau Fluid (TGLF) transport model was improved resulting in better agreement with GYRO nonlinear gyrokinetic turbulence simulations. The XPTOR transport code has been upgraded with the new version of TGLF. Here, we report on the results of predicting the density and temperature profiles in DIII-D H-mode discharges using the new TGLF model and compare the results to those obtained previously with TGLF-09. We also show the results of including kinetic carbon effects in TGLF and using the NEO drift-kinetic model for the neoclassical calculations. Previous TGLF modeling studies used the Chang-Hinton model. Building on these results we recompute the neutral beam deposition profile using the CQL3D code and examine the impact of finite orbit width (FOW) effects on the heating profile and the subsequent impact on our TGLF/NEO model predictions. In our validation study we focus on DIII-D discharges with varying degrees of toroidal rotation thus providing a dataset with varying mixes of turbulent and neoclassical transport.

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Jon Kinsey
CompX

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