

Abstract Submitted
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Predictions of the Confinement in DIII-D Hybrids Using the TGLF Transport Model¹ J.E. KINSEY, G.M. STAEBLER, R.E. WALTZ, J. CANDY, General Atomics — In previous work, the TGLF gyro-Landau-fluid transport model [1,2] was validated against a profile database of 96 L- and H-mode discharges. This work focuses on modeling hybrid discharges using an upgraded collision model in TGLF. Recent comparisons between TGLF and GYRO [3] non-linear simulations of long wavelength driftwave turbulence with collisions motivated improving the collision model in TGLF. Using a newly developed collision model results in the TGLF diffusivities more accurately fitting a database of 35 non-linear GYRO runs performed with collisions and Miller geometry. TGLF transport simulations of 32 DIII-D hybrid discharges show good agreement with both the ion and electron experimental temperature profiles. The transport simulations show the ion transport tends to be close to the neoclassical level while the electron transport tends to be dominated by short wavelength ETG modes.

[1] J.E. Kinsey, et al., Phys. Plasmas **15**, 055908 (2008).

[2] G.M. Staebler, et al., Phys. Plasmas **12**, 102508 (2005).

[3] J. Candy, R.E. Waltz, Phys. Rev. Lett. **91**, 45001 (2003).

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