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Modeling the H-mode Barrier With TGLF,* G.M. Staebler, J.E. Kinsey, R.E. Waltz, *General Atomics* — The trapped gyro-Landau fluid (TGLF) transport model was designed to be valid in the near separatrix region of tokamaks and spherical tori. Since the last published version [1], a number of improvements have been made to TGLF: general numerical equilibrium magnetic geometry, improved electron-ion collision model, improved saturation rule. Most importantly, momentum transport has been added. Both the parallel and ExB velocity shear and the coriolis drift are now included in the eigenmode calculation so that the linear wavefunction and viscous stress matrix can be computed quasilinearly. The ExB velocity shear is included using a generalization of the successful quench rule that includes a model for the radial wavenumber induced by the ExB velocity shear. With these improvements, the TGLF model is ready to push out to the edge of the closed flux surface region. The first TGLF results of linear stability calculations and particle, energy and momentum transport simulations of H-mode and L-mode near edge regions of the DIII-D tokamak will be reported.

[1] J.E. Kinsey, et al., Phys. Plasmas **15**, 055909 (2008).

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