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Comprehensive DIII-D Simulations of Bohm-like Transport With GYRO[1] R.E. WALTZ, J. CANDY, GA — Over the course of the last three years, a nonlinear continuum gyrokinetic code GYRO [1] has been developed at General Atomics to comprehensively simulate turbulent transport in tokamaks and allow direct quantitative comparisons to the experimental transport flows using actual experimental profiles and parameters. To arrive at this goal, GYRO not only treats the now standard ion temperature gradient (ITG) mode turbulence, but also treats trapped and passing electrons with collisions and finite beta, and all in real tokamak geometry. Previous work treated ρ^*-scaling and profile shear stabilization for ITG turbulence in simple geometry [2]. The focus of this poster is on the first use of the full capabilities of GYRO to simulate actual DIII-D ρ^*-scaled L-mode profiles [3]. The experiments and simulations show Bohm-like scaling. The stabilizing effects of profile variation and E×B shear are sizeable.

[1] J.M. Candy and R.E. Waltz, "An Eulerian Gyrokinetic-Maxwell Solver," submitted to J. Comp. Phys.
[2] R.E. Waltz, et al., Phys. Plasmas **9**, (2002) 1938.
[3] G.R. McKee, et al., IAEA Fusion Energy Conf. (2000) Paper EX6/5.

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R.E. Waltz
waltz@fusion.gat.com
General Atomics

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