Saturation Rule for the TGLF Transport Model
Fit to Shaped Geometry GYRO Simulations[*]

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A database of over 300 nonlinear driftwave turbulence simulations [1] using the GYRO gyrokinetic code [2] has been compiled. A subset of this database has been used to find a model for the saturated fluctuation level of the turbulence. This model completes the quasilinear calculation of the transport fluxes using the linear driftwave eigenmodes computed with the Trapped Gyro-Landau Fluid (TGLF) equations [3]. The first version of the saturation rule was fit to simulations in shifted circle geometry [4]. The saturation rule has now be revised to fit magnetic equilibria with elongation and triangularity using the Miller equilibrium model. The form of this revised saturation model and the quality of the fit to the GYRO simulations will be presented.

[1] The GYRO database is documented at fusion.gat.com/theory/gyro.
[2] J. Candy and R.E. Waltz, Phys. Rev. Lett **91** (2003) 45001-1.
[3] G.M. Staebler, J.E. Kinsey and R.E. Waltz, Phys. Plasmas **12** (2005) 102508.
[4] G. M. Staebler, J. E. Kinsey and R. E. Waltz, to be published in Phys. Plasmas.
[5] R.L. Miller, et al., Phys. Plasmas **5** (1998) 973; R.E. Waltz and R.L. Miller, Phys. Plasmas **6** (1999) 4265.