

Electron collisions in the trapped gyro-Landau fluid transport model

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ABSTRACT

Accurately modeling electron collisions in the trapped gyro-Landau fluid (TGLF) equations has been a major challenge. Insights gained from numerically solving the gyro-kinetic equation have led to a significant improvement of the low order TGLF model. The theoretical motivation and verification of this model with the velocity-space gyro-kinetic code GYRO [J. Candy and R.E. Waltz, *J. Comp. Physics* **186**, 545 (2003)] will be presented. The improvement in the fidelity of TGLF to GYRO is shown to also lead to better prediction of experimental temperature profiles by TGLF for a dedicated collision frequency scan.

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