

Abstract Submitted
for the GEC15 Meeting of
The American Physical Society

Anomalous electron transport in magnetized plasmas with ExB drift A. SMOLYAKOV, W. FRIAS, I. ROMADANOV, University of Saskatchewan, Saskatoon SK, Canada, I. KAGANOVICH, Y. RAITSES, Princeton Plasma Physics Laboratory, Princeton NJ, USA, M. UMANSKY, Lawrence Livermore National Laboratory, Livermore CA, USA — Nonlinear fluid model has been developed for describing the fluctuations in Hall plasmas with magnetized electrons and non-magnetized ions. The plasma is immersed in externally applied crossed electric and magnetic fields. Plasma density gradient and collision destabilize the anti-drift and low hybrid modes resulting in turbulence. The conditions for excitation are tested with initial value simulations within the BOUT++ framework and with a linear eigenvalue solver. Nonlinear turbulence simulations are performed and levels of the anomalous transport are determined. The scalings of the turbulent transport with various plasma parameters are investigated. Nonlinear fluid simulations are compared with selected results of Particle-in-Cell simulations.

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Date submitted: 19 Jun 2015

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