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Two–dimensional simulations of Electron Cyclotron Drift instability M. JIMENEZ, A. SMOLYAKOV, O. CHAPURIN, T. ZINTEL, University of Saskatchewan, S. JANHUNEN, University of Texas in Austin, D. SYDORENKO, University of Saskatchewan/University of Alberta, Y. RAITSES, I.D. KAGANOVICH, Princeton Plasma Physics Laboratory — The transverse (to the magnetic field) electric current due to ExB electron drift is a source of robust Electron-Cyclotron-Drift Instability (ECDI). It has been studied in the past in relation to the problem of anomalous resistivity in collisionless shock waves. Recently, it has attracted the interest as a possible source of anomalous transport in Hall thrusters. We have performed Particle-in-Cell simulation of this instability in two-dimensions: the periodic ExB direction perpendicular to the magnetic field and the finite length direction along the magnetic field terminated by the metallic or dielectric walls. The electric field was externally applied and was fixed. The role of the boundaries, sheath losses and finite length (along the magnetic field) on the mode development and anomalous electron current were investigated.

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