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Heating in numerical simulations of anomalous transport in E×B discharges SALOMON JANHUNEN, University of Texas at Austin, ANDREI SMOLYAKOV, University of Saskatchewan — Instability driven cross-field transport is an important feature affecting the operation and performance of $\mathrm{E} \times \mathrm{B}$ discharges. Significant electron heating is observed in traditional particle-in-cell simulations of the electron cyclotron drift instability (ECDI). Traditionally the heating is mitigated by introducing atomic physics and sources, but we have been able to reduce heating rate by using a different numerical scheme that eliminates some of the numerical error. We present results from particle-in-cell simulations of the electron cyclotron instability using the control variate direct-δf scheme.

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