

Abstract Submitted
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Reduced Landau collision operator suitable for gyrokinetic particle simulations¹ ALAIN BRIZARD, Saint Michaels College — Given the importance of the collisionless gyrokinetic formalism [1], the inclusion of self-consistent collisional effects in the neoclassical and collisionless (long-mean-free-path) regimes within the gyrokinetic formalism is of crucial importance in our ability to understand the complex nonlinear dynamics of magnetized fusion plasmas over long time scales. The exact energy-momentum conservation laws of a guiding-center Landau collision operator [2], which play an important role in monitoring the numerical accuracy of gyrokinetic particle simulations, are investigated for arbitrary magnetic-field geometry.

[1] A.J. Brizard and T.S. Hahm, *Rev. Mod. Phys.* 79 (2007) 421.

[2] J.W. Burby, A.J. Brizard, and H. Qin, *PoP* 22 (2015) 100707.

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