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The gyrokinetic free energy cascade driven by a magnetic field gradient GABRIEL PLUNK, BILL DORLAND, University of Maryland, College Park — Recent progress in the theory of the gyrokinetic inertial range cascade has created an opportunity to revisit the problem of the free energy cascade in tokamaks with a fresh perspective. In this work, we develop a theory of grad-B-driven, quasi-two dimensional free energy cascade in the so-called nonlinear phase-mixing range, $k\rho_i \gg 1$. We compare the predictions of this theory with nonlinear simulations using GS2 and its streamlined version, AstroGK.

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