

Abstract Submitted  
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**Kinetic effects on MHD instabilities with extended gyrokinetic theory**<sup>1</sup> L.J. ZHENG, M. KOTSCHENREUTHER, J.W. VAN DAM, IFS, Univ. Texas-Austin — In order to recover linear MHD from gyrokinetics and self-consistently obtain FLR effects on MHD modes, we revisit gyrokinetic theory and introduce two key modifications. First, the solution for the equilibrium gyrokinetic distribution function is obtained to higher order in Larmor radius. Second, additional gyrophase-dependent parts of the perturbed distribution function are retained. This extended linear gyrokinetic theory can then be used to study kinetic effects on tokamak MHD instabilities (e.g., resistive wall mode).

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