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FLR effects in nonlinear tearing mode reconnection[1] NUNO LOUREIRO, CMPD – UMD / PPPL, STEVE COWLEY, UCLA / Imperial College London, WILLIAM DORLAND, CMPD – UMD, GREG HAMMETT, PPPL, ALEXANDER SCHEKOCHIHIN, University of Cambridge — The influence of ion Finite Larmor Radius (FLR) effects in the evolution of the tearing mode is studied analytically and numerically. We use a gyrofluid extension of the usual two-field, reduced MHD equations, where closure is provided by the Gyrokinetic Poisson's law. Two-dimensional slab geometry is adopted. In the linear regime it is shown that significative enhancement of the growth rate of the mode occurs when the ion Larmor radius ($\rho_{i,s}$) exceeds the width of the dissipation layer. Nonlinearly, detailed comparison studies between the classic, no FLR case, and the finite $\rho_{i,s}$ case are presented. In particular, we show how several nonlinear transitional criteria established for the classic case are changed due to the presence of these terms.

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