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Progress in kinetic MHD simulation of magnetic reconnection in Harris sheet equilibrium JIANHUA CHENG, YANG CHEN, SCOTT PARKER, University of Colorado — We have developed a Lorentz force ion, fluid electron kinetic MHD hybrid model [D. Barnes, *et al*, Phys. Plasmas **15**, 055702 (2008)]. Here we focus on the implementation of an isothermal fluid electron model in the GEM turbulence code. A second-order accurate implicit scheme that generalizes the previous implicit scheme for Vlasov ions and drift kinetic electrons [Yang Chen and Scott E. Parker, Phys. Plasmas **16**, 052305 (2009)] has been implemented. The generalized Ohm's law is solved for the Harris sheet equilibrium configuration by Fourier decomposing the electric field along the equilibrium field and solving for each Fourier component in the direction perpendicular to the current sheet using direct matrix inversion. This presentation focuses on the linear instabilities for Harris sheet equilibrium. We will also provide some preliminary reconnection results and their direct comparison with MHD simulations.

Jianhua Cheng
University of Colorado

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