

Abstract Submitted  
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**New Kind of Magnetic Reconnection in Neutral Sheet Configurations**<sup>1</sup> ALEX FLETCHER, BRUNO COPPI, MIT — Neutral Sheet configurations are relatively simple models of the plasma and field configuration found in space physics that lend themselves to investigate the onset of relevant reconnection processes. In weakly collisional regimes these are shown to be intrinsically different from those occurring in plasma current sheets where the magnetic field is sheared but does not vanish. Considering an inhomogeneous electron temperature profile with finite curvature at the center of the sheet, and anisotropic thermal conductivities one of the two kinds of mode that can produce magnetic reconnection is localized over a layer that remains significant when the macroscopic scale distances involved are very large as is the case in space and astrophysics. This mode lends itself to produce high-energy particle populations through a realistic combination of mode-particle resonances.

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