

Abstract Submitted
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Effects of Ion Anisotropy in reconnection exhausts¹ J. N. J. EGEDAL, A. LE, MIT, PSFC, H. KARIMABADI, UCSD, W. DAUGHTON, LANL — Strong ion anisotropy has been observed in the reconnection exhausts of large-scale kinetic simulations, and this can be described by models considering the motion of single particles in one-dimensional fields [1, 2]. The anisotropy supports the formation of an elongated current sheet in the exhaust, in which most of the current is carried by the ions, extending the electron current sheet observed close to the x line. In addition, by considering momentum balance across the reconnection exhaust, we show the details of how the magnetic tension is balanced by the combination of fluid inertia and anisotropy, and how the anisotropy has a feedback effect on the reconnection process.

[1] S. W. H. Cowley, P. Shull Planet. Space Sci., 31, 235 (1983)

[2] J. F. Drake et. al. J. Geophys. Res., 114, A05111 (2009)

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