Abstract Submitted
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Accessing the Asymmetric Collisionless Reconnection Regime in the Terrestrial Reconnection Experiment (TREX)[1] SAMUEL GREESS, JAN EGEDAL, JOSEPH OLSON, ALEXANDER MILLET-AYALA, RACHEL MYERS, JOHN WALLACE, MICHAEL CLARK, CARY FOREST, University of Wisconsin-Madison — Kinetic effects are expected to dominate the collisionless reconnection regime, where the mean free path is large enough that the anisotropic electron pressure can develop without being damped away by collisional pitch angle scattering. In simulations, the anisotropic pressure drives the formation of outflow jets [1]. These jets are expected to play a role in the reconnection layer at the Earth's magnetopause, which is currently being explored by Magnetospheric Multiscale Mission (MMS) [2]. Until recently, this regime of anisotropic pressure was inaccessible by laboratory experiments, but new data from the Terrestrial Reconnection Experiment (TREX) shows that fully collisionless reconnection can now be achieved in the laboratory. Future runs at TREX will delve deeper into this collisionless regime in both the antiparallel and guide-field cases. [1] Le, A. et al. JPP, 81(1). doi: 10.1017/S0022377814000907. [2] Burch, J. L. et al. Space Sci. Rev. 199,5. doi: 10.1007/s11214-015-0164-9.

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