Abstract Submitted
for the DPP20 Meeting of
The American Physical Society

Kinetic Magnetic Reconnection Explored in the Laboratory[1] JAN EGEDAL, University of Wisconsin - Madison — Magnetic reconnection is explored on the Terrestrial Reconnection Experiment where the absolute rate of reconnection is set by an external drive. A shock interface between the supersonically driven plasma inflow and a region of magnetic flux pileup permits the normalized reconnection rate to self regulate to a fixed value. In agreement with numerical and theoretical results, the width of the electron diffusion regions is characterized by the kinetic length scale of the electrons. While the reconnection layers are modulated by a current-driven instability, their characteristics remain consistent with a 3D simulation for which off-diagonal stress in the electron pressure tensor is responsible for fast reconnection.

[1]Supported by DOE, NSF and NASA

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Date submitted: 29 Jun 2020 Electronic form version 1.4