

Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Role of electron trapping during reconnection in laboratory and space plasmas¹ JAN EGEDAL, UW-Madison — Experiments in VTF catalyzed an analysis of electron trapping, showing that electron pressure anisotropy will develop in the reconnection region [1]. The results inspired a kinetic model for anisotropic electron distributions recorded by the Wind spacecraft in the deep magnetotail [2]. The model was subsequently used to formulate a closure to the electron fluid equations, where the resulting Equations of State [3] permit electron trapping to be retained in two-fluid simulations [4]. Trapping has fundamental implications for the reconnection process, where it is the main driver of electron jets [4,5]. In the talk I will present the trapping model and how the circle between research in the laboratory, simulations, theory and spacecraft observations, now is being closed with observations of the narrow electron jets in the Terrestrial Reconnection EXperiment (TREX) at UW-Madison [6].

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- [2] Egedal et al., (2005) *Phys. Rev. Lett.*, 94, 025006.
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- [4] Ohia et al., (2012) *Phys. Rev. Lett.*, 109, 115004.
- [5] Le et al., (2010) *Geophys. Res. Lett.*, 37, L03106.
- [6] Olson et al., (2016) *Phys. Rev. Lett.*, 116, 255001.

¹This work was supported by NSF/DOE award DE-SC0013032 and NSF GEM award 1405166

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Date submitted: 14 Jul 2017

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