

Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Asymmetric Reconnection in the Terrestrial Reconnection Experiment JOSEPH OLSON, JAN EGEDAL, CARY FOREST, JOHN WALLACE, University of Wisconsin-Madison, TREX TEAM, MPDX TEAM — The Terrestrial Reconnection EXperiment (TREX) is a new and versatile addition to the Wisconsin Plasma Astrophysics Laboratory (WiPAL) at the University of Wisconsin-Madison. TREX is optimized for the study of kinetic reconnection in various regimes and to provide the first laboratory evidence in support of a new model describing the dynamics of trapped electrons and correlating pressure anisotropy. The initial configuration implemented in TREX is specially designed to study asymmetric reconnection scenarios. These are particularly relevant to the dayside magnetopause in which the plasma beta of the solar wind and of the magnetosphere can differ by factors of 100-1000. The configuration utilizes the Helmholtz coils to produce a static, uniform magnetic field up to 275 G through the 3 m spherical vacuum vessel. Plasma is produced on a 10 s rep rate while two internal coils are pulsed, creating an opposing magnetic field to induce reconnection with asymmetric high and low beta inflows. A Langmuir and Bdot probe array is swept in between pulses to build up the magnetic profiles in the reconnection region. Preliminary data from these initial runs will be presented.

Joseph Olson
University of Wisconsin-Madison

Date submitted: 11 Jul 2014

Electronic form version 1.4