

Abstract Submitted
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Pressure Anisotropy Probe for the Terrestrial Reconnection Experiment (TREX)¹ RACHEL MYERS, JAN EGEDAL, JOSEPH OLSON, SAMUEL GREESS, MICHAEL CLARK, PAUL NONN, JOHN WALLACE, CARY FOREST, Univ of Wisconsin, Madison — The Terrestrial Reconnection Experiment (TREX) at the Wisconsin Plasma Astrophysics Laboratory (WiPAL) studies magnetic reconnection primarily in the collisionless regime. In this regime, electron pressure anisotropy is expected to develop, deviating from traditional Hall reconnection dynamics and driving formation of large-scale current layers. In order to measure the anisotropy, a multi-tip electromagnetic probe similar to the M-probe described by Shadman [1], consisting of 32 Langmuir probe tips and two magnetic coils, has been constructed. Each tip is biased to a different potential, simultaneously measuring discrete parts of the full I-V characteristic. Pulsing the coil then locally increases the magnetic field, creating a magnetic mirror force to reflect electrons with large values of v_{\perp}/v . The change in electron velocity modifies the I-V characteristics and can be used to infer p_{\parallel}/p_{\perp} . Analysis with the new probe will be presented. [1] K. Shadman, Physics of Plasmas (2004).

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