Abstract Submitted
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Investigation of Electron Energization During Magnetic Reconnection Events in MST[1] AMI M. DUBOIS, J.D. LEE, A.F. ALMAGRI, B. CHAPMAN, D.J. DEN HARTOG, J.A. GOETZ, K. MCCOLLAM, M. NORNBERG, J.S. SARFF, Univ of Wisconsin, Madison — Magnetic reconnection plays an important role in particle transport and energization in space, astrophysical, and laboratory plasmas. Strong ion heating and energetic ion tail formation are observed in MST plasmas at the time of reconnection events, but Thomson scattering measurements indicate a slight drop in the electron temperature. This drop is probably the result of an increase in stochastic thermal transport, which may mask electron energization during reconnection events. Motivated by recent astrophysical results, electron dynamics during reconnection are now the subject of increased experimental attention in MST. Sensitive high-speed measurements of the electron energy distribution are required to uncover reconnection effects. A Fast X-Ray (FXR) detector, capable of measuring photon energies between 1 and 20 keV with a shaping time of 20 ns, has been installed on MST to measure x-ray spectra and calculate electron energy distributions. Distributions at tens of microsecond intervals around reconnection events will be compared to determine if a tail population of electrons is generated.

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