

Abstract Submitted
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Prospects for measuring shifted- and non-Maxwellian electron distributions with Thomson scattering on MST¹ S.Z. KUBALA, D.J. DEN HARTOG, A.M. DUBOIS, L.A. MORTON, W.C. YOUNG², University of Wisconsin-Madison — Recent measurements using a high-time-resolution soft x-ray spectrometer on MST suggest that a non-Maxwellian, energetic electron tail is generated during magnetic reconnection events. This has motivated the addition to the Thomson scattering (TS) diagnostic of the capability to measure shifted- and non-Maxwellian distribution functions. To that end, an 1140 nm centerline filter with 80 nm bandwidth has been installed in nine of 21 polychromators. This filter supplements a filter set that covers from approximately 715 nm to 1065 nm, used to measure Thomson scattered light from the 1064 nm YAG laser line. Simulations being performed will assess whether the TS diagnostic with the upgraded filter set will be capable of detecting a small population (around 5% of the electron density) of energetic electrons, and whether an eight-channel polychromator, which has increased resolution but also is inherently more noisy, provides a better fit than a six-channel polychromator.

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²Now at General Fusion

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