

Abstract Submitted  
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**Upgrades to the MST Thomson scattering diagnostic** S.Z. KUBALA, M.T. BORCHARDT, D.J. DEN HARTOG, D.J. HOLLY, C.M. JACOBSON, L.A. MORTON, W.C. YOUNG, University of Wisconsin-Madison — The Thomson scattering diagnostic on MST records both equilibrium and fluctuating electron temperature with a range capability of 10 eV to 5 keV. Standard operation with two modified commercial Nd:YAG lasers allows measurements at rates of 1-25 kHz. A new laser system is being commissioned to enable measurements up to 250 kHz. Other subsystems of the diagnostic are also being improved. The power supplies for the avalanche photodiode detectors (APDs) that record the scattered light are being updated to improve safety, reliability, and maintainability. Each of the 144 APDs will have an individual rack-mounted switched supply with bias voltage adjustable to match the APD. Long-wavelength filters (1140 nm center, 80 nm bandwidth) are being added to the polychromators to improve capability to resolve non-Maxwellian distributions and to enable electron-velocity measurement. A supercontinuum pulsed white-light source is being implemented to improve spectral calibration of the polychromators. This work is supported by the US DOE and NSF.

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