Abstract Submitted
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Fokker-Planck modeling of 2 keV Thomson Scattering electron temperature measurements on the MST.[1] R. O'CONNELL, D.J. DEN HARTOG, B.E. CHAPMAN, C.B. FOREST, J.A. REUSCH, H.D. STEPHENS, University of Wisconsin - Madison, M.T. BORCHARDT, R.W. HARVEY, CompX, Del Mar, CA., MST TEAM — On the MST RFP some 2 keV high confinement plasmas display an off-axis peak in the electron temperature profile measured by the Thomson scattering diagnostic. The distribution function computed by the Fokker-Planck modeling code CQL3D is used to predict the spectral distribution of the scattered radiation from a Nd:YAG laser pulse. The off- axis peak in the temperature profile may be explained by a distortion of the electron distribution in the parallel direction, caused by the high parallel electric field in the plasma. This distortion of the parallel distribution function influences primarily the off-axis scattered spectral distribution; on axis, the Thomson scattering diagnostic is sensitive only to the perpendicular electron distribution. The signal-to-noise ratio of the data is insufficient to allow direct inversion to an electron distribution function, so comparison to Fokker-Planck modeling predictions is key to understanding unusual features in the temperature profile and spectral distribution.

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