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A Comparison of Ponderomotive Scaling to Hot Electron Slope Temperatures inferred from Bremsstrahlung Measurements in Short-pulse Laser Experiments[1] C.D. CHEN, MIT, D. HEY, M.H. KEY, LLNL, K.U. AKLI, General Atomics, F.N. BEG, UCSD, H. CHEN, LLNL, R.R. FREEMAN, A. LINK, The Ohio State University, A.J. MACKINNON, A.G. MACPHEE, P.K. PATEL, LLNL, M. PORKOLAB, MIT, R.B. STEPHENS, General Atomics, L.D. VAN WOERKOM, The Ohio State University — The hot electron slope temperature is an important component in estimating the coupling of the electrons produced in the laser-plasma interaction region to the compressed core. Bremsstrahlung measurements were made from thick-foil targets irradiated with the TITAN laser (1054 nm, 150 J, 0.7 ps, 10^{20} W/cm^2) at LLNL. A Hard X-Ray Bremsstrahlung Spectrometer comprised of filtered image plates was used to measure the x-ray spectrum with discrimination up to 500 keV. The electron slope temperatures were inferred from the x-ray measurements using the Monte Carlo code ITS 3.0. The inferred spectra are compared to synthetic distributions calculated from ponderomotive scaling and images of the laser focal spot using an equivalent plane imager. Resistive transport effects on the x-ray spectrum have also been studied with the hybrid-PIC code LSP and results will be discussed.

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