

Abstract Submitted
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Determination of Electron-Heated Target Temperatures in Petawatt Laser Experiments Using Soft X-Ray Diagnostics¹ TAMMY MA, FARHAT BEG, University of California-San Diego, ANDREW MACPHEE, HYUN-KYUNG CHUNG, MICHAEL KEY, ANDREW MACKINNON, STEPHEN HATCHETT, Lawrence Livermore National Laboratory, RICHARD STEPHENS, KRAMER AKLI, General Atomics, LINN VAN WOERKOM, The Ohio State University, BINGBING ZHANG, University of California-Davis — The study of the transport of electrons, and the flow of energy into a solid target or dense plasma, is instrumental in the development of fast ignition inertial confinement fusion. Various solid targets (layered foils, cones, wires) were irradiated with the Titan Laser ($4 \times 10^{19} \text{ Wcm}^{-2}$) at LLNL. Analysis has been done on soft x-ray images, spectra, and streaked images to determine the thermal electron temperatures on target back surfaces. Three independent methods (Soft X-Ray Spectrometer, 68eV XUV Imager, and 256eV XUV Imager) were used to confirm temperatures, while a fourth diagnostic (Streaked 68eV XUV Imager) provided time-resolved temperature information.

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