Abstract Submitted
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Measurements of electron density and temperature in shock-compressed Be from x-ray Thomson scattering H.J. LEE, Department of Physics, University of California, Berkeley CA, S.H. GLENZER, T. DOEPPNER, O.L. LANDEN, R.W. LEE, Lawrence Livermore National Laboratory, Livermore CA, R.W. FALCONE, Department of Physics, University of California, Berkeley CA — X-ray Thomson scattering measurements have provided an insight into characterization of dense plasmas by determining electron temperature, density, and ionization state [1,2]. We have measured spectrally resolved 6 keV x-ray scattering spectra of shock-compressed matter created by counter-propagating shocks at the Omega laser facility. The spectra in non-collective scattering regime show Compton features that give evidence of Fermi-degenerate dense plasmas with a Fermi energy above 30 eV and temperatures of 10-15 eV. Detailed analysis in comparison with radiation-hydrodynamic modeling will be presented. [1] S. H. Glenzer *et al.*, Phys. Rev. Lett. 90, 175002 (2003); Phys. Rev. Lett. 98, 065002 (2007). [2] H. J. Lee *et al.*, Phys. Rev. Lett. 102, 115001 (2009). This work was performed under the auspices of the U.S. Department of Energy by University of California, Lawrence Livermore National Laboratory under Contract No. DE-AC52-07NA27344 and supported by the National Laboratory User Facility program.

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