

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Development of an 18 keV X-Ray Thomson Scattering Source for the Characterization of Dense States of Matter¹ TAMMY MA, Lawrence Livermore National Laboratory, HAEJA LEE, SLAC National Accelerator Laboratory, TILO DOEPPNER, Lawrence Livermore National Laboratory, ROGER FALCONE, University of California, Berkeley, CARSTEN FORTMANN, ANDREA KRITCHER, OTTO LANDEN, SIEGFRIED GLENZER, Lawrence Livermore National Laboratory — The accurate characterization of material properties under extreme conditions is an important issue for the understanding of high energy density states of matter, from planetary interiors to capsule implosions relevant to inertial confinement fusion. High energy x-ray Thomson Scattering at 18 keV will make it possible to characterize very dense states of matter such as 50x compressed beryllium, ICF-like ablator materials, aluminum compressed up to 4x by a single shock, and isochorically heated mid-Z elements (such as Ti). Here we present results from a backscattering experiment carried out at the Omega Laser Facility, performed on aluminum, the highest-Z material probed to this date. We will also demonstrate the viability of molybdenum He-alpha (18 keV) as a suitable backlighter probe source.

¹This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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Date submitted: 15 Jul 2010

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