

Abstract Submitted  
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**X-ray Thomson scattering of warm dense matter on the Z-Accelerator** TOMMY AO, JAMES E. BAILEY, ERIC C. HARDING, MICHAEL P. DESJARLAIS, STEPHANIE B. HANSEN, MARCUS D. KNUDSON, RAYMOND W. LEMKE, L. PAUL MIX, DANIEL B. SINARS, DAVID F. WENGER, Sandia National Laboratories, P. DAVID LEPELL, Ktech Corp., GIANLUCA GREGORI, University of Oxford — Accurate measurements of warm dense matter (WDM) physical properties, such as temperature, density, and ionization state, are important for understanding and modeling high-energy density physics. X-ray Thomson scattering has recently been used to probe WDM states generated with high-power lasers. The Z-Accelerator has the capability to create WDM states with greater uniformity, larger size, and longer duration than that achievable on laser-driven experiments. Magnetically launched flyers experiments on the Z-Accelerator utilizing the Z-Backlighter Laser to generate x-rays for scattering of shock-compressed samples are in preparation. A new spherically bent focusing spectrometer has been built to measure scattered x-rays with high spatial and spectral resolution, and high sensitivity. Initial calibration measurements and plans for future Z experiments will be discussed. Sandia National Laboratories is a multi-program laboratory operated by Sandia Corp., a wholly owned subsidiary of Lockheed Martin Corp., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

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