

Abstract Submitted  
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**X-ray Phase Contrast Imaging of a Strong Shock in a Dense Plasma**<sup>1</sup> D.S. MONTGOMERY, K.A. FLIPPO, D.C. GAUTIER, J.B. WORKMAN, J.A. COBBLE, J.L. KLINE, Los Alamos National Lab, S.A. GAILLARD, Univ. Nevada Reno, N. VUTISALCHAVAKUL, Ohio Wesleyan Univ. — X-ray phase contrast imaging (XPCI) relies on gradients in an object's phase, rather than absorption, to produce image contrast, and requires sufficient propagation distances to optimize the contrast for a given x-ray source size and wavelength. We report initial experimental results using the TRIDENT 200-TW laser to produce bright K- $\alpha$  x-rays with a source size  $\sim 12\text{-}\mu\text{m}$  using Mo or Ag wire targets. This is used as a point backlighter to radiograph static or dynamic targets in the phase contrast regime. For the dynamic experiments, a strong spherical shock is launched in a low-Z target using a 200-J, 1.2 nsec laser focused on the target, which is diagnosed using XPCI with a few psec time resolution. Initial experimental results and comparison to theory will be reported.

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