

Abstract Submitted
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1- and 2-frame monochromatic x-ray imaging of NIF-like capsules on Z, and future higher-energy, higher-resolution, 2- & 4-frame x-radiography plans for ZR G.R. BENNETT, M. HERRMANN, D.B. SINARS, M.E. CUNEO, M.C. JONES, K.L. KELLER, G.T. LEIFESTE, T.D. MULVILLE, J.L. PORTER, I.C. SMITH, SNL, C.A. BACK, GA — The Z accelerator - presently undergoing the ZR upgrade - has recently been used to study ultrasmooth, NIF-like capsules that have glass and polyimide fill-tubes placed around a great circle. The 2-mm CH shells were driven by the uniform, 70-eV Planckian field of a z-pinch-driven double-ended hohlraum. High-brightness, high-spatial-resolution, x-radiography was key to these tests. As such the TW-class, multi-kJ, 526.57 nm Z-Beamlet Laser (ZBL) [Appl. Opt. **44**, 2421 (2005)] was used to produce the x-ray source for the 6.151-keV curved-crystal imaging system [Rev. Sci. Instrum. **75**, 3672 (2004)]. Previous enhancements to the latter [G. R. Bennett *et al.*, Rev. Sci. Instrum., in press.] have led to brighter images, allowing subtle capsule implosions details to be observed for the first time. Recent enhancements to the former, have led to the ZBL capability of acquiring two temporally separated images per Z shot, and brighter 1-frame images. 1- & 2-frame unperturbed-shell & fill-tube hydro data, as well as higher-energy, higher-resolution 2- & 4-frame x-radiography plans for ZR, will be discussed. Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the National Nuclear Security Administration under DE-AC04-94AL85000.

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