Abstract Submitted
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High-energy synchrotron X-ray radiography of shock-compressed materials[1] MICHAEL E. RUTHERFORD, DAVID J. CHAPMAN, MARK A. COLLINSON, DAVID R. JONES, JASMINA MUSIC, SAMUEL J.P. STAFFORD, GARETH R. TEAR, THOMAS G. WHITE, JOHN B.R. WINTERS, Institute of Shock Physics, Blackett Laboratory, Imperial College London, London, UK SW7 2BW, MICHAEL DRAKOPOULOS, Diamond Light Source, Beamline I12 (JEEP), Didcot, Oxfordshire, UK OX11 0DE, DANIEL E. EAKINS, Institute of Shock Physics, Blackett Laboratory, Imperial College London, London, UK SW7 2BW — This presentation will discuss the development and application of a high-energy (50 to 250 keV) synchrotron X-ray imaging method to study shock-compressed, high-Z samples at Beamline I12 at the Diamond Light Source synchrotron (Rutherford-Appleton Laboratory, UK). Shock waves are driven into materials using a portable, single-stage gas gun designed by the Institute of Shock Physics. Following plate impact, material deformation is probed in-situ by white-beam X-ray radiography and complimentary velocimetry diagnostics [1]. The high energies, large beam size (13 x 13 mm), and appreciable sample volumes ($\sim$ 1 cm^3) viable for study at Beamline I12 compliment existing in-house pulsed X-ray capabilities and studies at the Dynamic Compression Sector. [1]: D. E. Eakins and D. J. Chapman, Review of Scientific Instruments 85, 123708 (2014).

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Michael Rutherford
Imperial College London

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