

Abstract Submitted
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Strategies for Time-resolved X-ray Diffraction of Phase Transitions with Laser Compression¹ LAURA ROBIN BENEDETTI, J. H. EGERT, D. K. BRADLEY, P. M. BELL, J. D. KILKENNY, N. PALMER, R. B. PETRE, Lawrence Livermore National Laboratory, J. R. RYGG, C. SORCE, G. W. COLLINS, T. R. BOEHLI, Laboratory for Laser Energetics — As part of a program to document kinetics of phase transitions under laser-driven dynamic compression, we are designing a platform to make multiple x-ray diffraction measurements during a single laser experiment. Our plans include experimental development at Omega-EP and eventual implementation at NIF. We will present our strategy for designing a robust platform that can effectively document a wide variety of phase transformations by utilizing both streaked and multiple-frame imaging detectors. Preliminary designs utilize a novel CMOS detector designed by Sandia National Lab. Our initial experiments include scoping studies that will focus on photometrics and shielding requirements in the high EMP environment close to the target.

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