## Abstract Submitted for the DPP05 Meeting of The American Physical Society

Phase contrast radiography for dynamic plasma experiments BRIAN SPEARS, D.H. MUNRO, K. TWELKER, M.M. MARINAK, M.J. ED-WARDS, Lawrence Livermore National Lab — Common x-ray imaging relies on differential attenuation of x-rays by the object to produce intensity contrast in the image. Such contrast is known as absorption contrast. However, intensity contrast may be enhanced due to interference resulting from phase shifts introduced by wave propagation through the object. This is known as phase contrast. We examine the utility and feasibility of phase contrast imaging for diagnosing dynamic laser plasma experiments in support of the National Ignition Campaign. We do this using numerical simulations of phase contrast radiographs produced with PHAT, a modification of the ray trace code DRAT. PHAT takes as input data from the radiation hydrodynamics code HYDRA, and accounts for both absorption and phase effects. As specific examples, we consider plasma jets produced by indirectly driving planar beryllium foils. We also look at imploding National Ignition Facility ignition capsules. We finally discuss the influence of constraints, such as source size, target chamber geometry, and noise, on expected experimental phase contrast results.

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