Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Sensitivity of Gas-Ablator Mix to Shock Merger Depth in 2-Shock Symcaps at the National Ignition Facility T. MA, S. A. MACLAREN, J. D. SALMONSON, D. HO, S. F. KHAN, L. MASSE, J. E. PINO, J. E. RALPH, C. CZAJKA, R. E. TIPTON, Lawrence Livermore National Laboratory, G. A. KYRALA, Los Alamos National Laboratory — The HED 2-Shock implosion campaign was developed on the National Ignition Facility as a relatively robust and well-behaved nearly one-dimensional, low convergence, symmetric platform by employing a two-shock pulseshape in a low gas-fill hohlraum and a large case-to-capsule (hohlraum-to-capsule size) ratio. Additionally, the relatively thick capsule shell (low aspect ratio of 3.9) combined with the temperature of the foot of the laser pulse (˜120 eV) essentially eliminates ablation front instability growth. The result is a platform that is well suited to the study of mixing at the gas-ablator interface without the complications of low mode asymmetries or mix feedthrough. A layer of CD plastic on the inner surface of the CH shell filled with a mixture of H and T allows for the inference of gas-ablator mix via the measurement of DD and DT neutron yields. By advancing or retracting the time of launch of the second shock, the depth into the capsule at which the two shocks merge can be systematically varied from the shell to the gas. The effect of this, and possible rebound shocks, on inducing mix at the gas-ablator interface is studied. Details and results of these experiments will be described.

Tammy Ma
Lawrence Livermore National Laboratory

Date submitted: 13 Jul 2017 Electronic form version 1.4