Yield, Ion Temperature, fuel-\(\rho R\) and Burn-history Measurements in Exploding Pusher Experiments at OMEGA and the NIF

M. ROSENBERG, A. ZYLSTRA, H. RINDERKNECHT, N. SINENIAN, J. FRENJE, F. SEGUIN, C. LI, R. PETRASSO, MIT, P. MCKENTY, V. GLEBOV, C. STOECKL, T. SANGSTER, R. BETTI, LLE, J. RYGG, A. MACKINNON, A. MACPHEE, D. HICKS, S. FRIEDRICH, LLNL, J. KILKENNY, A. NIKROO, GA — In preparation for the planned DD- and D\(^3\)He-exploding-pusher experiments at the NIF, we conducted similar experiments at OMEGA in which yield, ion temperature, fuel-\(\rho R\), and burn history were measured by a variety of diagnostic techniques. The resulting data from these measurements provide, in combination with simulations, a comprehensive understanding of these implosions. In this presentation, we report the result from these experiments and their potential implications for the NIF experiments. A status report on the NIF activities will be presented as well. This work was supported in part by the US DOE, LLNL and LLE.

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