Abstract Submitted
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Measurements of hydrodynamic instability growth in beryllium capsules at the National Ignition Facility[1] S.A. YI, A.N. SIMAKOV, D.C. WILSON, J.L. KLINE, R.E. OLSON, G.A. KYRALA, T.S. PERRY, S.H. BATHA, Los Alamos National Laboratory, A.G. MACPHEE, D.T. CASEY, J.L. PETERSON, V.A. SMALYUK, E.L. DEWALD, J.E. RALPH, D.J. STROZZI, D.A. CALLAHAN, D.E. HINKEL, O.A. HURRICANE, D.S. CLARK, B.A. HAMMEL, J.L. MILOVICH, H.F. ROBEY, Lawrence Livermore National Laboratory — Beryllium is an ablator material that is predicted to improve resilience to capsule hydro-instability growth in ICF implosions. Beryllium creates a higher ablation velocity at NIF-relevant radiation temperatures, due to its lower opacity. As a result, beryllium capsules are predicted to have enhanced ablative stabilization of Rayleigh-Taylor instabilities. Thus, beryllium capsule implosions are expected to suffer less performance degradation due to capsule hydro-instabilities. A hydro-growth radiography (HGR) experiment is planned for September 2015 to test this hypothesis. The HGR experiment will measure the ablation front instability growth of a beryllium capsule using backlit radiography. Here, we present an analysis of the capsule stability properties for the first beryllium target recently fielded on NIF, and compare to the results of the HGR experiment.

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