

Abstract Submitted
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Design of an experiment to measure hydrodynamic instability growth in ICF capsules at the National Ignition Facility KUMAR RAMAN, VLADIMIR SMALYUK, DANIEL CASEY, STEVEN HAAN, BRUCE HAMMEL, OMAR HURRICANE, HYE-SOOK PARK, J. LUC PETERSON, Lawrence Livermore National Laboratory, KYLE PETERSON, Sandia National Laboratory, BRUCE REMINGTON, HARRY ROBEY, Lawrence Livermore National Laboratory — A new platform to measure hydrodynamic instability growth on ICF capsules at the National Ignition Facility has been developed and successfully fielded. The concept involves backlit, x-ray imaging of the in-flight growth of a known perturbation machined on an ignition-relevant capsule driven by an ignition-relevant laser pulse. The initial experiments in this platform aimed to measure and compare the growth factor versus mode number dispersion curves of a typical “low-foot” drive, resembling what was fielded during the 2011–12 National Ignition Campaign, with a typical “high-foot” drive, for which models suggest the RT/RM instability growth is lower. We discuss the design and initial data set of this new platform, and compare with model predictions. This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

Kumar Raman
Lawrence Livermore National Laboratory

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