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Measuring the Ablative Richtmyer-Meshkov Growth of Isolated Defects on Plastic Capsules ERIC LOOMIS, LANL, DAVE BRAUN, LLNL, STEVE BATHA, TOM SEDILLO, SCOTT EVANS, LANL, CHUCK SORCE, OTTO LANDEN, LLNL — To achieve thermonuclear ignition at Megajoule class laser systems such as the NIF using inertially confined plasmas, targets must be designed with high in-flight aspect ratios (IFAR) resulting in low shell stability. Recent simulations and experiments have shown that isolated features on the outer surface of an ignition capsule can profoundly impact capsule performance by leading to material jetting or mix into the hotspot. Unfortunately, our ability to accurately predict these effects is uncertain due to disagreement between equation of state (EOS) models. In light of this, we have begun a campaign to measure the growth of isolated defects due to ablative Richtmyer-Meshkov in CH capsules to validate these models. Face- on transmission radiography has been used to measure the evolution of Gaussian bump arrays in plastic targets. Targets were indirectly-driven using Au halfraums to radiation temperatures near 65-75 eV at the Omega laser (Laboratory for Laser Energetics, University of Rochester, NY) simultaneous with x-ray backlighting from a saran (Cl) foil. Shock speed measurements were also made to determine drive conditions in the target. The results from these experiments will aid in the design of ignition drive pulses that minimize bump amplitude at the time of shell acceleration.

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