Abstract Submitted
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Evidence of foam interpenetration in unloading, shocked reservoirs at the National Ignition Facility[1] SHON PRISBREY, HYE-SOOK PARK, ROBIN BENEDETTI, Lawrence Livermore National Laboratory, PETER GRAHAM, Atomic Weapons Establishment, UK, CHANNING HUNTINGTON, JAMES MCNANEY, RAYMOND SMITH, CHRIS WEHRENBERG, CYNTHIA PANAS, ANGELA COOK, MICHAEL WILSON, BRUCE REMINGTON, A. ARSENLIS, Lawrence Livermore National Laboratory — Shocked reservoirs that have unloaded across a gap can create a pressure profile upon stagnation. The pressure profile can be tailored to some degree by changing the initial thickness, density, and material components of the reservoir prior to shock loading. We have previously shown that the drive created by each component of the reservoir can be inferred from a velocity history measurement made at the back of a thin ($\sim$ 15 μm) drive plate placed at the stagnation side of the gap. Recent measurements of lower density, carbonized resorcinol formaldehyde foam indicates a density threshold below which individual foam layers no longer create a step in the velocity history but create a continuous increase in the velocity. We will present drive results from recent experiments on the National Ignition Facility and the required density profiles needed in simulation to match the experiment which indicate that substantial mixing/interpenetration is occurring during the shock loading of the lowest density foam layer.

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