

Abstract Submitted
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Measurement of the Shock Velocity and Symmetry History in Decaying Shock Pulses KEVIN BAKER, JOSE MILOVICH, OGGIE JONES, HARRY ROBEY, VLADIMIR SMALYUK, DANIEL CASEY, PETER CELLIERS, DAN CLARK, LLNL, EMILIO GIRALDEZ, GA, STEVE HAAN, ALEX HAMZA, LAURA BERZAK-HOPKINS, KEN JANCAITIS, JEREMY KROLL, KAI LAFORTUNE, BRIAN MACGOWAN, ANDREW MACPHEE, JOHN MOODY, LLNL, ABBAS NIKROO, GA, LUC PETERSON, KUMAR RAMAN, CHRIS WEBER, CLAY WIDMAYER, LLNL — Decaying first shock pulses are predicted in simulations to provide more stable implosions and still achieve a low adiabat in the fuel, enabling a higher fuel compression similar to “low foot” laser pulses. The first step in testing these predictions was to measure the shock velocity for both a three shock and a four shock adiabat-shaped pulse in a keyhole experimental platform. We present measurements of the shock velocity history, including the decaying shock velocity inside the ablator, and compare it with simulations, as well as with previous low and high foot pulses. Using the measured pulse shape, the predicted adiabat from simulations is presented and compared with the calculated adiabat from low and high foot laser pulse shapes. This work was performed under the auspices of the U.S. Department of Energy by LLNL under Contract DE-AC52-07NA27344.

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