Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Modeling of Low Feed-Through CD Mix Implosions JESSE PINO, STEVEN MACLAREN, JEFF GREENOUGH, DANIEL CASEY, TOM DITTRICH, SHAHAB KAHN, Lawrence Livermore National Laboratory, GEORGE KYRALA, Los Alamos National Laboratory, TAMMY MA, JAY SALMONSON, VLADIMIR SMALYUK, ROBERT TIPTON, Lawrence Livermore National Laboratory — The CD Mix campaign previously demonstrated the use of nuclear diagnostics to study the mix of separated reactants in plastic capsule implosions at the National Ignition Facility. However, the previous implosions suffered from large instability growth seeded from perturbations on the outside of the capsule. Recently, the separated reactants technique has been applied to two platforms designed to minimize this feed-through and isolate local mix at the gas-ablator interface: the Two Shock (TS) and Adiabat-Shaped (AS) Platforms. Additionally, the background contamination of Deuterium in the gas has been greatly reduced, allowing for simultaneous observation of TT, DT, and DD neutrons, which respectively give information about core gas performance, gas-shell atomic mix, and heating of the shell. In this talk, we describe efforts to model these implosions using high-resolution 2D ARES simulations with both a Reynolds-Averaged Navier Stokes method and an enhanced diffusivity model. This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344. LLNL-ABS-674867

Jesse Pino
Lawrence Livermore National Laboratory

Date submitted: 21 Jul 2015 Electronic form version 1.4