Abstract Submitted
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2D Simulations of CD Mix Capsules[1] JESSE PINO, JEFF GREENOUGH, ROBERT TIPTON, STEVEN WEBER, VLADIMIR SMALYUK, DANIEL CASEY, DANA ROWLEY, BRUCE REMINGTON, Lawrence Livermore National Laboratory — The CD Mix campaign is a recent series of experiments to measure atomic ablator-gas mix in capsule implosions on the National Ignition Facility. Plastic capsules containing deuterated plastic (CD) layers were filled with Tritium gas. As the reactants are initially separated, DT fusion yield provides a direct measure of mix in the outer part of the core. By varying the depth of the CD layer, a measure of mix penetration length can be made. We will describe the 2D ARES Arbitrary Lagrangian-Eulerian Radiation Hydrodynamics simulations of these experiments. Imposed surface roughness perturbations are adjusted to match the TT neutron yield from the core of the implosion. To match the DT neutron yield and temperature, two different dynamic mix models are applied: the K-L Reynolds Averaged Navier-Stokes model, and multicomponent Navier-Stokes model. We compare these models and assess their ability to capture the dependence of DT yield on the recession depth of the CD layer.

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