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Sensitivity of mix in Inertial Confinement Fusion simulations to diffusion processes JEREMY MELVIN, Stony Brook University, BAOLIAN CHENG, Los Alamos National Lab, VERINDER RANA, HYUNKYUNG LIM, JAMES GLIMM, Stony Brook University, DAVID H. SHARP, Los Alamos National Lab — We explore two themes related to the simulation of mix within an Inertial Confinement Fusion (ICF) implosion, the role of diffusion (viscosity, mass diffusion and thermal conduction) processes and the impact of front tracking on the growth of the hydrodynamic instabilities. Using the University of Chicago HEDP code FLASH, we study the sensitivity of post-shot simulations of a NIC cryogenic shot to the diffusion models and front tracking of the material interfaces. Results of 1D and 2D simulations are compared to experimental quantities and an analysis of the current state of fully integrated ICF simulations is presented.

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