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Modeling Instability Growth in Inertial Confinement Fusion Simulations JEREMY MELVIN, VERINDER RANA, HYUNKYUNG LIM, State Univ of NY- Stony Brook, BAOLIAN CHENG, Los Alamos National Lab, JAMES GLIMM, State Univ of NY- Stony Brook, DAVID SHARP, DOUG WILSON, Los Alamos National Lab — We numerically investigate the mixing behavior of Rayleigh-Taylor (RT) and Richtmyer-Meshkov (RM) instabilities during the implosion of Inertial Confinement Fusion (ICF) capsules. We emphasize the importance of accurate modeling of the RM growth as an initial seed to the RT growth. Using models to predict the mixing parameters (Prandtl, Schmidt, Reynolds), we provide estimates of the projected growth of these instabilities and discuss their impact on ignition conditions in the hot core. In addition, we discuss the impact of adding front tracking capabilities to ICF codes and their modeling of instability growth.

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