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Using Hydrodynamic Codes in Modeling of Multi-Interface Diverging Experiments for NIF[1] M.J. GROSSKOPF, R.P. DRAKE, C.C. KURANZ, University of Michigan, T. PLEWA, N. HEARN, University of Chicago, D. ARNETT, C. MEAKIN, University of Arizona, A.R. MILES, H.F. ROBEY, J.F. HANSEN, B.A. REMINGTON, W. HSING, M.J. EDWARDS, Lawrence Livermore National Laboratory — Using the Omega Laser, researchers studying supernova dynamics have observed the growth of Rayleigh-Taylor instabilities in a high energy density system. The NIF laser hopes to generate the energy needed to expand on these experiments to a diverging system. We report scaling simulations to model the interface dynamics of a multilayered, diverging Rayleigh-Taylor experiment for NIF using a combination of 1D and 2D Hyades, a Lagrangian 3-temperature, 1-fluid hydrodynamic simulation code used within the high energy density physics community, and CALE, a hybrid adaptive Lagrangian-Eulerian code developed at LLNL and used extensively throughout the hydro community. The simulations will assist in the target design process and help choose diagnostics to maximize the information we receive in a particular shot. This will be critical given that early experiments on NIF will get few shots and take a considerable amount of time and money to prepare.

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