

Abstract Submitted  
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**Hydrodynamic Instability Test Problems in CRASH<sup>1</sup>** CHUAN-CHIH CHOU, BRUCE FRYXELL, ERIC MYRA, PAUL DRAKE, University of Michigan — We present the results of hydrodynamic instability simulations using the current version of the CRASH code. In particular, we concentrate on the early-time behavior of Rayleigh-Taylor and Richtmyer-Meshkov instabilities as a necessary validation and verification step before exploring the behavior of Rayleigh-Taylor instabilities in laser experiments relevant to supernovae. We compare the quantitative growth rates calculated based on the extracted features of the test runs with the analytical and semi-analytical solutions, as well as with previous results with other hydrodynamic simulation packages. In addition to test runs replicating the parameters used in previous studies, we also conducted systematic surveys of slices of the parameter space where analytical solutions are available using different simulation resolutions where computational resources permitted. We will discuss any systematic errors discovered in the CRASH test runs and their plausible causes.

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