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An inviscid regularization technique for two-phase flows with shocks and turbulence KAMRAN MOHSENI, TENG LI, University of Florida — An inviscid regularization technique for the simulation of multiphase flows with sharp interfaces is introduced. This methodology is based on a similar approach successfully used by our group in the past for regularizing single-phase problems with shocks and/or turbulence. The observable divergence theorem is employed to obtain the governing equations, namely the observable Euler and Navier-Stokes equations, from the conservation laws. Results of several inviscid simulations of incompressible and compressible two-phase flows with sharp interfaces are reported and compared with other available techniques. Specifically, simulation results of the Rayleigh-Taylor instability and rising bubble problems in viscous or inviscid fluids are reported.

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