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Simulations of Single-mode Richtmyer-Meshkov and Rayleigh-Taylor Instabilities in Spherical Geometries[1] ANTHONY NELSON, PRAVEEN RAMAPRABHU, University of North Carolina, Charlotte, UNC TEAM — We describe recent numerical simulations of the single-mode Rayleigh-Taylor (RT) and Richtmyer-Meshkov (RM) instabilities in a spherical geometry. The simulations were performed using the astrophysical FLASH code in two- and three-dimensions. Our results are compared to previously published simulation results[2] and linear[3] and nonlinear[4] theories. The RM problem was setup with an air-SF6 interface, subject to a Mach 1.2 shock, and a convergence ratio of 10. We studied the variation of initial amplitude, shock strength, and convergence ratio. We expect the single-mode results to inform multimode growth in applications through bubble merger and competition mechanisms.

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Praveen Ramaprabhu
University of North Carolina, Charlotte

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