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Computational Study of the Richtmyer-Meshkov Instability for a He-SF6 Interface CHRISTOPHER WEBER, NICHOLAS HAEHN, BRADLEY MOTL, JASON OAKLEY, MARK ANDERSON, RICCARDO BONAZZA, University of Wisconsin-Madison, JEFFREY GREENOUGH, Lawrence Livermore National Laboratory — Computational simulations of the Richtmyer-Meshkov (RM) instability are performed using the 2D Eulerian AMR code *Raptor* (LLNL) for a perturbed gas interface of helium over sulfur-hexafluoride. The interfacial modal content of the initial conditions for these simulations are directly obtained from the recent experiments carried out at the University of Wisconsin Shock Tube Laboratory. In the simulation, performed at a resolution of 128 grid points per wavelength, the interface is accelerated by a planar shock wave of varying strength ($1.1 < M < 2$). These very high Atwood number (A=0.95) interfaces result in asymmetrical bubble/sphere growth in the early stages of the RM instability development and a near pinch-off of the heavy fluid located at the spike tip in the very late stages. The computed solutions are compared to experimental results and several analytic models.

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