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Three-dimensional Modeling of Laboratory Jets Interacting with Obstructions B. WILDE, R. COKER, LANL, P. ROSEN, J. FOSTER, R. WILLIAMS, AWE, B. BLUE, LLNL, P. HARTIGAN, R. CARVER, Rice University — We have fielded hohlraum-driven high-Mach-number jet experiments on the Omega laser at the U of Rochester that scale to astrophysical jets. We have obtained high-resolution x-ray images of jets deflected from a high-density sphere that simulate astrophysical jets interacting with stellar clouds at different impact parameters. We will present 2- and 3-d simulations of these jets with the continuous-adaptive-mesh-refinement radiation-hydrodynamics code RAGE. 3d calculations are not only required because of the 3-d initial configuration of the jet-ball interactions, but also because of the breakup of the jet after the deflection. We have developed the technique of running high resolution 2d simulations to obtain the correct impulse delivered to the jet; then rotating the jet into 3d, adding the 3d configuration of the ball; running relatively low resolution for some time and later higher resolution to capture details of the breakup after the jet deflection. We will also show simulations of jet and shock interactions with multiple balls to be fielded in the future under the NLUF program.

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