Non-inertial Eulerian Hydrodynamic Code for ICF Implosion Simulations A. BOSE, P.-Y. CHANG, J.R. DAVIES, R. BETTI, Laboratory for Laser Energetics, U. of Rochester — We present the first results from a 2-D Eulerian hydrodynamic code that solves the equations of motion in the frame of reference of the target center of mass. The fluid equations are written in the conserved Eulerian form with extra source terms arising because of the non-inertial nature of the coordinate system. The accelerated coordinate system allows for the use of a static Eulerian grid. The coordinates move with a sharp density gradient therefore specifying the location of a fine-mesh region. The code uses the finite-volume method with several schemes that have been compared for propagating shock fonts. Numerical experiments have been implemented to test the code. The results from this new code are compared with those from existing Eulerian and Lagrangian hydrodynamic codes. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement Nos. DE-FC52-08NA28302 and DE-FC02-04ER54789.

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