Visualizing the Growth of High Energy Density Mixing Layers

LUKE SIMMONS, University of Dallas / Lawrence Livermore National Lab, KUMAR RAMAN, Lawrence Livermore National Lab — At Lawrence Livermore National Lab, we computationally modeled the mixing layer between two fluids as high energy density shock waves passed through the interface between the fluids. This modeling was done with the aim of designing a NIF target which could be imaged using X-rays on the order of 10keV in order to measure the width of the target's mixing layer. We used an Arbitrary Lagrangian-Eulerian modeling method and tested several different target designs and shock wave drives. One design which showed great potential for a successful measurement was a bifurcated target. Special consideration was given the error introduced with a bifurcated target.