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Accuracy of the shock timing obtained for a National Ignition Facility ignition target[1] M.M. MARINAK, D.H. MUNRO, Lawrence Livermore National Laboratory — The indirectly-driven ignition target for the National Ignition Facility features a cryogenic capsule driven by a series of four shocks which must be precisely timed. The timing of the first three shocks will be measured and tuned experimentally using a surrogate target which features a line of sight pipe attached to a mock capsule. The interior of the line of sight pipe and the ablator shell are filled with liquid deuterium in the surrogate target. The view through the pipe enables precise, direct measurement of the timing of shocks transiting the shell. We present simulations which assess how closely the timing information obtained from this surrogate target matches the ignition target. The plasma conditions in the surrogate target are a near match to the ignition target. These simulations make use of new capabilities in the Arbitrary Lagrange Eulerian ICF code HYDRA. They resolve the ablation physics using a multiblock mesh that conforms to the target geometry. Techniques employed in these HYDRA simulations also enable modeling of other ICF targets having complex, asymmetric geometries, such as a diagnostic patch or a slot.

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