Simulations of Directly-Driven Cone-in-Shell Implosions\textsuperscript{1} R.P.J. TOWN, D.S. CLARK, M.M. MARINAK, H.D. SHAY, M. TABAK, D.S. HEY, P.K. PATEL, Lawrence Livermore National Laboratory, K.S. ANDERSON, R. BETTI, W. THEOBALD, Laboratory for Laser Energetics, U. of Rochester — In fast ignition a short-pulse high intensity laser is used to generate relativistic electrons that subsequently deposit their energy into the compressed fuel to initiate a propagating burn wave. A high-density cone is often inserted into the capsule to allow a clear path for the ignition laser to the compressed fuel. The presence of the cone alters the dynamics in two ways from a spherically symmetric implosion. First, x-ray pre-heat can be absorbed by the cone causing the cone material to expand ahead of the imploding fuel leading to mixing of the high-Z cone material into the fuel. Second, the stagnation of the fuel near the cone can launch a jet into the cone increasing the transport distance of the short-pulse generated relativistic electrons. This paper reports on HYDRA simulations of directly driven OMEGA-scale plastic capsule implosions.

\textsuperscript{1}This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.