Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Status of Fast Ignition Program at LLNL P.K. PATEL, C. BELLEI, S. CHAWLA, C. CHEN, B. COHEN, L. DIVOL, D. HIGGINSON, A. KEMP, G. KEMP, M. KEY, D. LARSON, A. LINK, T. MA, H. MCLEAN, Y. PING, Lawrence Livermore National Laboratory, H. SAWADA, UC San Diego, H. SHAY, D. STROZZI, M. TABAK, B. WESTOVER, S. WILKS, Lawrence Livermore National Laboratory — The fast ignition (FI) approach to inertial confinement fusion offers the potential for achieving the high target gains required for Inertial Fusion Energy (IFE). This paper reports progress at LLNL on the development of a point design for an indirect-drive re-entrant-cone FI target. Integrated hohlraum and capsule designs are described that optimize the peak density, ρR and spatial uniformity of the fuel assembly around the cone tip. The interaction of the short-pulse ignitor beam in the cone is simulated with the PSC explicit particle-in-cell (PIC) code, and the subsequent transport of the electrons and core heating calculated with the Zuma hybrid transport code coupled to the Hydra radiation-hydrodynamics code. Progress will be described in the integrated modeling approach to fast ignition target design through the self-consistent treatment of the hohlraum radiation drive, capsule implosion, fast electron generation and transport, and core heating. This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

P.K. Patel
Lawrence Livermore National Laboratory

Date submitted: 29 Jul 2011 Electronic form version 1.4