Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Analysis of 2011 Defect Imaging Capsule Implosions PAUL BRADLEY, JAMES COBBLE, SCOTT HSU, GLENN MAGELSSEN, THOMAS MURPHY, KIMBERLY OBERY, MARK SCHMITT, IAN TREGILLIS, NATALIA KRASHENINNIKOVA, FREDERICK WYSOCKI, Los Alamos National Lab — Los Alamos is engaged in a project to design high neutron fluence feature-driven mix experiments for the National Ignition Facility in 2012. These results will be relevant for determining how much imperfection capsules can have in inertial fusion energy. To prepare for NIF, we fielded shots on the Omega laser in January and July 2011 with a 40 beam polar direct drive configuration similar to what we will employ on NIF. The capsules were 15 to 17 micron CH plastic shells about 880 microns in diameter filled with 5 atm of D_2 gas. We fielded capsules with different dopant layers and different depth equatorial grooves that were about 30 microns wide. We obtained radius versus time plots, radiographs, neutron yields, ion temperatures, burn widths, streak spectra, among other data. Preliminary calculations show that we match the radius versus time plots within about the data error and we have reasonable matches to the other data. We will will present these results and additional detailed comparisons of calculations to data. Work performed by Los Alamos National Laboratory under contract DE-AC52-06NA25396 for the National Nuclear Security Administration of the U.S. Department of Energy.

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Date submitted: 11 Jul 2011 Electronic form version 1.4