Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Computational Simulations of Radiation Driven Low – Convergence NIF Capsules[1] ROBERT PETERSON, RICHARD OLSON, JOHN KLINE, Los Alamos National Laboratory, STEPHAN MACLAREN, JAY SALMONSON, Lawrence Livermore National Laboratory — Experiments are planned on the NIF laser at Lawrence Livermore National Laboratory, in which capsules with thick CH ablators will be imploded with x-rays produced in vacuum or near vacuum hohlraums. These capsules are expected to implode to convergence ratios of 13 to 37 and will serve as a test of the ability of simulation codes to agree with experimental measurements in the regime. The convergence ratio will be adjustable by modifying the DT gas density. The CH ablators are going to be thick enough that we believe that the predominant instabilities on the ablator/gas surface will be Richtmyer-Meshkov. The Rayleigh-Taylor instabilities generated on the surface of the ablator should not penetrate the ablator. This presentation will show 2-D computer code simulations of these experiments and will show how the neutron yield varies with the asymmetry of the radiation drive. The drive symmetry in the experiments will be controlled by the laser. The experimental neutron yields will be compared with the 2-D simulation values, once the experiments take place.

[1]This work was performed under the auspices of the U. S. DOE by LANL under contract DE-AC52-06NA25396, and by LLNL under contract DE-AC52-07NA27344.

Robert Peterson
Los Alamos National Laboratory

Date submitted: 10 Jul 2014 Electronic form version 1.4