Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Controlling Laser-Driven Hohlraums-Clues from Experiments with Earlier Lasers[1] WILLIAM KRUER, CLIFF THOMAS, Lawrence Livermore National Laboratory — Better characterized and controlled hohlraums are very important for both implosion and science experiments on NIF. A brief review of some hohlraum and related experiments with earlier lasers is given to search for lessons learned and clues for better understanding NIF hohlraums. For example, surprises associated with heat transport inhibition and improved models for radiation generation have been a recurring theme in indirect drive experiments. In Shiva experiments, the hohlraum filling with plasma with density near quarter-critical was only calculated after inhibited heat transport and improved radiation models were adopted in the design code [1]. Early NIF experiments also led to a change in the heat transport and radiation models. In this case, the heat transport model was changed from one with modest inhibition (which had been used to model Nova experiments) to near classical transport [2]. Most recently, a design model invoking very inhibited transport (at various times and locations) has been proposed by C. Thomas for NIF hohlraums. Other recurring themes will also be discussed.

[1] W. C. Mead (private communication)
[2] M. Rosen, et. al., High Energy Density Physics 7, 180 (2011)

[1]This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344

William Kruer
Lawrence Livermore National Laboratory

Date submitted: 21 Jul 2015 Electronic form version 1.4