Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

In Pursuit of a More Ideal Hohlraum[1] KEVIN BAKER, CLIFF THOMAS, TED BAUMANN, RICHARD BERGER, MONIKA BIENER, DEBBIE CALLAHAN, PETER CELLIERS, LLNL, FRED ELSNER, GA, SEAN FELKER, ALEX HAMZA, DENISE HINKEL, LLNL, HAIBO HUANG, GA, OGGIE JONES, NINO LANDEN, JOSE MILOVICH, JOHN MOODY, ABBAS NIKROO, LLNL, RICK OLSON, LANL, DAVID STROZZI, LLNL — Current hohlraum designs have a number of issues which are detrimental to achieving ignition; including LPI, CBET, hot electrons, non-ideal spectral emission(gold M-Band) and wall motion leading to implosions with large symmetry swings. We are undertaking a campaign on the NIF to address many of these issues through the use of thin wall liners. We will present a comparison between three experiments, a gold hohlraum, a copper-lined hohlraum and a zinc oxide foam-lined hohlraum and discuss our future experimental plans which will utilize very low density foam liners, $\sim$ 10 mg/cc, and low gas fill densities, <0.6 mg/cc. This combination is predicted in simulations to greatly reduce the expansion of the gold wall leading to reduced symmetry swings, result in large reductions in LPI(SBS, SRS and 2Wpe) and eliminate gold m-band emission. The removal of the gold m-band spectra reduces the ablator-fuel instability growth and allows the use of undoped or less doped capsules which in turn reduces the ablation front growth factors leading to a more stable implosion.

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

Kevin Baker
LLNL

Date submitted: 21 Jul 2015 Electronic form version 1.4