Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Laser Plasma Instability Reduction by Coherence Disruption and Other Techniques WILLIAM KRUER, University of California, Davis, PETER AMENDT, NATHAN MEEZAN, LARRY SUTER, Lawrence Livermore National Laboratory — Additional techniques to control laser plasma instabilities can enlarge the parameter space for ignition target designs on the National Ignition Facility. Recent experiments[1] on the Helen laser facility suggest that coherence disruption (in this case by modified electron distribution functions[2] in higher Z targets) can significantly reduce the stimulated Brillouin reflectivity. We explore techniques to possibly engineer coherence disruptions in NIF hohlraums, say, by modulations in the liner composition or by manipulation of the plasma flow. Experiments to test these ideas in Omega experiments are outlined. We also explore other techniques for instability reduction, including conversion of plasma expansion energy into ion thermal energy.

1. R. M. Stevenson, *et. al.,* Phys. Plasmas 11, 2709 (2004)

2. B. B. Afeyan, *et. al.,* Phys. Rev. Lett. 80, 2322 (1998)

This work was performed under the auspicies of the U.S. Department of Energy by the University of California Lawrence Livermore National Laboratory under Contract No. W-7405-Eng-48

William Kruer
University of California, Davis

Date submitted: 15 Jul 2005 Electronic form version 1.4