Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Modeling energy transfer via beam crossing in NIF hohlraums[1]
PIERRE MICHEL, LAURENT DIVOL, ED WILLIAMS, DEBBIE CALLAHAN, LLNL — The interference between two laser beams crossing in a plasma can efficiently excite an ion acoustic wave, which can drive forward Stimulated Brillouin Scattering between the beams and transfer energy from one to the other. In NIF, multiple beams will cross at the laser entrance hole of the hohlraum. The energy transfer may affect symmetry, but can be controlled through a planned tuning of the frequencies of the beams. We used our paraxial laser-plasma interaction code SLIP to study the energy transfer between laser beams for typical NIF target designs. SLIP uses a linear kinetic coupling between the laser beams and the ion acoustic wave. We will present results on the typical energy transfer between NIF beams, and on the optimum set of parameters that minimize the transfer and optimizes symmetry.

[1]This work was performed under the auspices of the U.S. Department of Energy by the Lawrence Livermore National Laboratory under contract No. W-7405-ENG-48.

Pierre Michel
LLNL

Date submitted: 27 Aug 2007 Electronic form version 1.4