Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

Simulation of Foil Heating Using Short Pulse Lasers for Strongly Coupled Plasma Experiments[1] MARK SCHMITT, R.J. MASON, BJORN HEGELICH, KIRK FLIPPO, JUAN FERNANDEZ, Los Alamos National Laboratory — Laser facilities can now generate high-contrast picosecond-regime temporal pulses having peak intensities of $\sim 10^{18}$ W/cm^2 with pre-pulse intensity levels below the ionization threshold of a solid target. This allows for the generation of high laser intensity gradients at the surface of the target. In turn, these gradients ponderomotively produce hot electrons that penetrate into the target substrate and heat it. The utility of using this mechanism to quickly heat a thin $\sim$10 micron thick target into an inertially-confined strongly-coupled plasma is examined using the radiation-hydrodynamics code LASNEX. Results for various material targets and laser parameters will be shown.

[1]This work is sponsored by the US DOE and the LANL LDRD program.

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Date submitted: 15 Aug 2006 Electronic form version 1.4