Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Absorption by the Two-Plasmon-Decay Instability in Direct-Drive Implosions W. SEKA, D.H. FROULA, D.H. EDGELL, J.F. MYATT, R.W. SHORT, I.V. IGUMENSHCHEV, V.N. GONCHAROV, A.V. MAXIMOV, Laboratory for Laser Energetics, U. of Rochester — There is mounting evidence that the two-plasmon-decay instability near $n_c/4$ absorbs non-negligible amounts of the incident laser energy in direct-drive implosion experiments. Most of this energy is deposited as thermal energy between $0.25 \leq \quad n_c/n_e \quad \leq 0.2$ (typical Landau cutoff location) with a small fraction going into energetic electrons. This conjecture is based on time-resolved $3\omega/2$ emission, scattered light at the laser wavelength, energetic-electron measurements, neutron and x-ray bang times, and comparison with hydrodynamic simulations. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

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Date submitted: 12 Jul 2011 Electronic form version 1.4