Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Measurements of Plasma Filling Inside a Fast-Ignitor Cone Target Using Streaked Optical Pyrometry C. STOECKL, T.R. BOEHLY, J.A. DELETTREZ, J. MYATT, J.E. MILLER, W. THEOBALD, T.C. SANGSTER, Laboratory for Laser Energetics, U. of Rochester, R.B. STEPHENS, General Atomics — The cone-in-shell approach to fast ignition uses a high-density Au cone to keep the path where the ultrafast laser propagates free of plasma. The cone is inserted into the spherical shell that holds the fuel, with its tip close to the center of the target. The high pressure from the fuel close to peak compression drives a shock wave through the cone, which breaks out inside the cone and generates a plasma. The filling of the cone was studied experimentally on the OMEGA laser using a streaked optical pyrometer. No plasma was seen inside the cone before the assembled core reaches peak compression. A clear shock-breakout signal was recorded well after peak compression, with a shock temperature of the order of 10 eV. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-92SF19460.

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Date submitted: 24 Aug 2005 Electronic form version 1.4