

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Fast electron characterization using Al cone wire targets at OMEGA EP H. SAWADA, UCSD, P.K. PATEL, C.D. CHEN, LLNL, T. YABUCHI, UCSD, W. THEOBALD, C. STOECKL, U. of Rochester, F.N. BEG, UCSD, A. KEMP, S. WILKS, H.S. MCLEAN, M.K. KEY, LLNL, R.B. STEPHENS, GA, K.U. AKLI, OSU — Understanding of fast electron energy distribution and laser-to-electron conversion efficiency is critical for the development of Fast Ignition laser fusion. We have characterized the electrons generated with the EP laser at 1 and 10 ps by measuring 8.05 keV $K\alpha$ x-ray from a 1.5 mm long Cu wire attached to an Al cone tip. The $K\alpha$ emission along the wire and absolute yields were recorded with a crystal imager and a HOPG spectrometer. The total yields with 10 ps pulse was \sim 30% lower than that with 1 ps. A PIC code, PSC-hybrid, was used to calculate the laser plasma interaction. The simulation included the measured laser intensity pattern and simulated pre-plasma profiles. Fast electron transport using the calculated source was modeled with a hybrid PIC code, LSP. Details of the experiment and comparisons to the model will be presented. This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344 and DE-FG-02-05ER54834 (ACE).

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Date submitted: 20 Jul 2011

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