

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Carbon Ion Energy Spectra from Hemispherical EP Targets¹

F.E. LOPEZ, J.A. COBBLE, K.A. FLIPPO, D.T. OFFERMANN, LANL — High-intensity laser acceleration of ions may be useful for several applications. Carbon hemishell targets have been shot at OMEGA-EP for ion focusing experiments (Flippo and Offermann, this meeting). This paper reports on carbon ion data collected with a Thomson parabola ion energy analyzer known as TPIE. With 1 kilojoule of laser energy on target, C^{6+} has been detected at energies from $\sim 9 - 33$ MeV. Lower charge states down to C^{3+} at energies from $6 - 16$ MeV are also detected. The dominant ion is C^{5+} . Representative carbon ion-energy distributions are shown for the hemishell targets, which were heated to drive off proton contaminants. Without the target heating, the carbon abundance is greatly reduced. The nominal EP irradiance for these experiments was $\sim 5 \times 10^{18}$ W/cm². TPIE has proven its worth for ion energy analysis for such experiments. EP focal-spot properties and contrast will be improved in the coming year, and this will be a significant benefit for ion experiments and applications.

¹This work has been performed under the auspices of the United States Department of Energy, contract number DE-AC52-06NA25396.

James Cobble
LANL

Date submitted: 19 Jul 2010

Electronic form version 1.4