

Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Experimental measure of proton energy loss in short pulse laser generated, proton heated carbon¹ R. SHEPHERD, H. CHEN, LLNL, S. FELDMAN, G. DYER, University of Texas, Austin, S. CHEN, LLNL, J. FUCHS, M. GAUTHIER, P. AUDEBERT, Laboratoire d'Utilisation de Lasers Intenses (LULI), T. DITMIRE, University of Texas, Austin, P. BEIERSDORFER, LLNL, M. PURVIS, Colorado State University, A. HAZI, R. LONDON, LLNL, M. MURILLO, Los Alamos National Laboratory, L. BENEDICT, J. DUNN, J. GLOSI, S. HAU-RIEGE, B. LANGDON, R. MORE, LLNL, J. ROCCA, Colorado State University, N. ROHRINGER, F. STREITZ, J. WEISHEIT, F. GRAZIANI, LLNL — We present a new approach to determining stopping power of charged particles in plasmas. We will use short pulse laser-generated protons to heat solid slab targets. The high intensity, short duration laser pulse will generate a burst of protons that isochorically heat the sample, minimizing temperature and density gradients. A second laser-generated proton beam will be sent through the heated target and the relative energy loss will be measured using a proton spectrometer. The heated target thickness will be changed, providing a measure of dE/dx . The target conditions will be determined using Frequency Domain Interferometry for density and emissivity for temperature. The target thickness is varied, providing an avenue to determine the dE/dx . Preliminary experimental results will be presented.

¹This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

Ronnie Shepherd
LLNL

Date submitted: 22 Jul 2009

Electronic form version 1.4