

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Dynamics of relativistic laser-plasma interaction: filamentation, ponderomotive steepening and hole boring Y. PING, A. KEMP, C. CHEN, D. HEY, P. PATEL, H. MCLEAN, M. KEY, S. WILKS, L. DIVOL, LLNL, E. KEMP, A. LINK, L. WOERKOM, R. FREEMAN, OSU, D. TURNBULL, Princeton U., S. CHAWLA, B. WESTOVER, C. JARROT, H. SAWADA, F. BEG, UCSD, K. AKLI, R. STEPHENS, GA — We performed time-resolved measurements of the wavelength shift of specularly reflected light from flat targets at fast-ignition relevant intensities with subpicosecond time resolution. A large red shift was observed at beginning of the laser pulse, indicating the onset of filamentation. The plasma density profile is modified consequently due to ponderomotive pressure and the effect on the hot electron energy spectrum will be discussed. Comparison with 2D PIC simulations and the dependence on preplasma scale length, laser intensity and pulse duration will also be presented. This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

Yuan Ping
LLNL

Date submitted: 16 Jul 2010

Electronic form version 1.4