

Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

Time Resolved K_α Measurements in laser-solid interaction at relativistic laser intensities¹ H. CHEN, R. SHEPHERD, LLNL, A.J. KEMP, University of Nevada, Reno, Nevada, H.-K. CHUNG, G. DYER, K.B. FOURNIER, S.B. HANSEN, Y. PING, K. WIDMANN, S.C. WILKS, LLNL — We present the time-resolved K_α emission measurement in short pulse laser-solid interactions using a picosecond time-resolved x-ray spectrometer for laser intensities at 10^{17} , 10^{18} and 10^{19} W/cm². Our measurements indicate that most of the K_α radiation is generated several ps after the laser pulse is over. This suggests that the electrons responsible for the underlying process originate in an ionization cascade initiated by the hot electrons. This can be explained by a simple model based on collisional coupling, plasma expansion and M-shell ionization that can reproduce the characteristics of the K_α history.

¹This work was performed under the auspices of the U.S. DOE by LLNL under contract No. W-7405-Eng-48.

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Date submitted: 25 Jul 2006

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