

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Interaction of intense multi-picosecond laser pulses with matter¹

ANDREAS KEMP, LAURENT DIVOL, BRUCE COHEN, LLNL — We present new results on the two- and three-dimensional kinetic modeling of short-pulse laser-matter interaction of Petawatt pulses at the spatial and temporal scales relevant to current experiments. We address key questions such as characterizing the multi-picosecond evolution of the laser energy conversion into hot electrons, i.e., conversion efficiency as well as angular- and energy distribution; the impact of return currents on the laser-plasma interaction; and the effect of self-generated electric and magnetic fields on electron transport. We will report applications to current experiments at LLNL's Titan laser and Omega EP, and to a Fast-Ignition point design.

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

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Date submitted: 11 Jul 2011

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