

Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

LSP Modeling of Reflection and Absorption of an Intense Laser Pulse from a Solid Target¹ DOUGLASS SCHUMACHER, ANTHONY LINK, VLADIMIR OVCHINNIKOV, RICHARD FREEMAN, LINN VAN WOERKOM, The Ohio State University, MINGSHENG WEI, FARHAT BEG, University of California, San Diego, MICHAEL KEY, ANDREW MACKINNON, PRAVESH PATEL, Lawrence Livermore National Laboratory, LUJBOMIR NIKOLIC, YING TSUI, ROBERT FEDOSEJEVS, University of Alberta — We describe the results of LSP modeling of laser reflection from solid-density gold slabs surrounded by lower density plasma (scale length of order $10\ \mu\text{m}$). We treat p-polarized light at various incident angles, intensities up to $10^{19}\ \text{W}/\text{cm}^2$ and various pulse widths. We examine absorbed, specularly reflected, and scattered light, and near and far field spatial and spectral modification of the beam. We find large, regular variation of reflectivity and scatter with all parameters, increased divergence and red chirp in the reflected beam, and other effects. We compare to recent experiment.

¹Work supported by the U.S. Department of Energy under contracts DE-FG02-05ER54834, DE-AC52-07NA27344, and by an allocation of computing time from the Ohio Supercomputer Center.

Douglass Schumacher
The Ohio State University

Date submitted: 16 Jul 2009

Electronic form version 1.4