Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Modeling the Modification of Escaping Electrons[1] A. LINK, R.R. FREEMAN, D.W. SCHUMACHER, L.D. VAN WOERKOM, The Ohio State University — Ultraintense laser interactions with solid density plasma involve significant transfer of energy to electrons, and the energy and angular distribution of these electrons play a vital role in the Fast Igniter approach to Inertial Fusion Energy. Electrons are typically measured through the generation of secondary radiation or by direct measurement of the electrons which escape the plasma. LSP simulations were performed to determine the extent of modification of the electron spectrum by transport through a dense plasma and the electromagnetic fields produced when electrons leave the plasma. The laser plasma interaction was modeled with an electron distribution based upon ponderomotive scaling and measured laser-to-electron energy efficiency. The simulations include time and space varying sheath fields, Ohmic fields, *and ion acceleration.* The simulated energy spectrum as recorded by an electron spectrometer is found to differ significantly from the spectrum computed within the target. New results including the role of ion expansion will be presented.

[1]Work supported by the U.S. Department of Energy under contracts DE-FG02-05ER54834, DE-FC02-04ER54789and by an allocation of computing time from the Ohio Supercomputer Center.

Anthony Link
The Ohio State University

Date submitted: 14 Jul 2010 Electronic form version 1.4