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LSP simulations of eliminating electron refluxing in Fast Ignition related experiments VLADIMIR OVCHINNIKOV, KRAMER AKLI, GREGORY KEMP, ANDREW KRYGIER, LINN VAN WOERKOM, DOUGLASS SCHUMACHER, RICHARD FREEMAN, THE OHIO STATE UNIVERSITY TEAM — In previous work[1] we found that refluxing from the front, back and side surfaces of a target gives rise to K_α images that are not necessarily representative of the FI-relevant, hot electrons. Placing a thick layer of low-Z material on the back of the target (called the Get-Lost-Layer or GLL) can reduce electron refluxing without strongly attenuating the K_α signal. We present the results of fully kinetic 2D simulations, using the PIC code LSP, of eliminating electron refluxing in buried cone targets for the perfect case when all electrons are stopped in the GLL. Our simulation results are in good agreement with recent experiments at Titan laser at LLNL in 2009, indicating that carbon GLLs successfully eliminate electron refluxing. This work was supported by the U.S. Department of Energy under contracts DE-FC02-04ER54789, DE-FG02-05ER54834, and allocations of computing time from the LLNL Institutional Computing Grand Challenge program.

[1]V.M. Ovchinnikov et al, Phys. Plasmas, to be published in July, 2011

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