

Abstract Submitted  
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**Numerical study of the effects of preformed plasma on the fast electron transport**<sup>1</sup> B.S. PARADKAR, M.S. WEI, T. YABUUCHI, F.N. BEG, UCSD, R.B. STEPHENS, GA — Recent short pulse laser-solid interaction experiments performed at ILE, Japan [T. Yabuuchi et. al., Bull Am Phys Soc 2008.DPP.JP6.113] have reported pre-formed plasma causing a ring-like  $K\alpha$  x-ray emission around the central bright spot from a Cu fluorescence layer buried between Al layers. To explain this, we have performed a series of 2D hybrid/PIC simulations with LSP code to model fast electron transport in pre-formed plasma. The pre-formed plasma and corresponding thermoelectric azimuthal magnetic fields are obtained by simulating the long pulse laser-solid interaction with 2-D radiation hydrodynamic code, h2d [larsen@casinc.com]. The LSP simulations suggest that the ring structure is due to the fast electrons deflected by B-fields into the pre-plasma and then reflected back by electrostatic sheath fields excited near the transverse edge of plasma plume. The details of simulation results along with comparison with experimental data will be presented.

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