

Abstract Submitted  
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**Study of fast electron generation and transport in interactions of intense laser pulse with pre-plasma produced by long laser pulse on foil targets**<sup>1</sup> T. YABUUCHI, J.A. KING, M.S. WEI, B.S. PARADKAR, S.N. CHEN, T. MA, F.N. BEG, UCSD, R.B. STEPHENS, GA, M. HATAKEYAMA, N. NAKANII, H. HABARA, K. MIMA, K.A. TANAKA, ILE — The influence of pre-plasma on fast electron generation is a critical issue for fast ignition. Multi-layered targets containing a Cu fluorescence layer were irradiated by an intense laser pulse ( $I \leq 2 \times 10^{18} \text{ W cm}^{-2}$ ) at the ILE, Japan. Various scale lengths of pre-plasma were generated using a long laser pulse.  $K_\alpha$  x-rays spectroscopy and imaging were employed to characterize electron generation and transport. The Cu  $K_\alpha$  x-rays were viewed from the front (laser irradiated) side through an Al ablator layer that prevented direct heating of the fluor. The presence of pre-plasma caused an x-ray yield reduction ( $\leq 50\%$ ) and created a ring structure around an x-ray bright spot. Results compared against radiation hydrodynamics and hybrid/PIC modeling will be presented.

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