Abstract Submitted
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Study of Fast Electron Transport into Imploded High-Density Plasmas Using Cu-doped CD Shell Targets[1] M.S. WEI, R.B. STEPHENS, A. GREENWOOD, D. HOOVER, N. ALFONSO, H. HUANG, E. GIRALDEZ, General Atomics, L.C. JARROTT, H. SWADA, F.N. BEG, UCSD, W. THEOBALD, C. STOECKL, LLE, M.H. KEY, P. PATEL, C. CHEN, H. MCLEAN, LLNL, T. YABUUCHI, H. HABARA, Osaka U — Details of fast electron transport and energy coupling into the imploded high density plasma core are characterized using fluorescence from Cu added to the CD shell of a cone-guided Fast Ignition (FI) target. Like previous integrated FI experiments [1], this work uses the OMEGA 60 beams (18 kJ) for fuel assembly, and the high intensity EP beam (10 ps, 1.5 kJ, $I_{peak} > 10^{19}$ W/cm^2), focused onto the inner cone tip, to produce fast electrons. Transport and energy coupling are diagnosed by measuring the induced Cu K-shell x-ray radiation (total yield and spatial distribution) from the imploded Cu-doped shell, complemented with neutron yield measurement. The escaped electron energy spectra are also recorded at several angles. Experimental results and comparison to Monte-Carlo and hybrid PIC calculations will be presented.

[1] W Theobald et al., Phys. Plasmas **18**, 056305 (2011).

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Mingsheng Wei
General Atomics

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