Abstract Submitted
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PIC modeling of material dependence on fast electron generation and transport[1] R. MISHRA, UCSD, M.S. WEI, GA, S. CHAWLA, USCD, LLNL, Y. SENTOKU, UNR, R.B. STEPHENS, GA, F.N. BEG, UCSD — 2D collisional PIC simulations, using PICLS[2] code that includes dynamic ionization and radiation cooling, are performed to model a recent experiment[3] on the Titan laser using multi-foil targets, where 2x reduction in total fast electron flux and a smaller spot size through high-Z layer were observed. Modeling show that a thin high-Z transport layer (e.g., Au) near lower Z source layer introduces a collimating effect on fast electron transport. Strong self-generated resistive B-fields are produced inside Au layer and at the interface (Al/Au), which confine the fast electron propagation and can also trap electrons in wing region to inhibit their propagation. In addition, effects of the surface material on LPI produced fast electron source characteristics are examined in both planar and buried cone geometries.

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[2]Y Sentoku, JCP 227, 6846 (2008)
[3]S Chawla et al, this meeting

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