Abstract Submitted
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ePLAS examination of short-pulse laser- wire and foil interactions[1] R. FAEHL, R.J. MASON, Research Applications Corp, M. WEI, T. MA, F.N. BEG, UCSD, R. STEPHENS, General Atomics — An enhanced 2D implicit hybrid simulation code ePLAS has been used to examine short-pulse laser interactions with cone-wire and foil targets. The code deposits picosecond pulses of 1 μm, $\sim$3x10^{20} W/cm^2 laser light near critical, and tracks resultant megavolt "hot" particle-in-cell (PIC) electrons through an ionized copper or carbon background plasma. The background is modeled as collisional Van Leer "cold electron" and ion fluids. The code now elevates the returning fluid colds to hot particles, when their energy exceeds a specified threshold (e.g. 20 keV). It also uses real equations of state from analytic models or the Sesame Tables. Cylindrical and Cartesian results are compared. The emphasis will be on recent cone/nail-wire experiments[2] with target heads of varying mass, and revisited foil studies.[3]

[1]Research partly supported by the USDOE under DE-FG02-07ER84723.
[2]T. Ma et al., "Transport of energy by ultra-intense laser-generated electrons in nail-wire targets," submitted to Physics of Plasmas
[3]R. J. Mason, et al. Phys. Rev. E **72**, 01540 (R) (2005).

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