Abstract Submitted
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Heating in short-pulse laser-driven cone-capped wire targets[1] R.J. MASON, M. WEI, J. KING, F. BEG, R.B. STEPHENS — The 2-D implicit hybrid simulation code e-PLAS has been used to study heating in cone-capped copper wire targets. The code e-PLAS tracks collisional particle-in-cell (PIC) electrons traversing background plasma of collisional Eulerian cold electron and ion fluids. It computes $E-$ and *B-fields* by the Implicit Moment Method [1,2]. In recent experiments [3] at the Vulcan laser facility, sub- picosecond laser pulses at 1.06 μm, and 4.0 x 10^{20} W/cm^2 intensity were focused into thin-walled ($\sim$10 μm) cones attached to copper wires. The wire diameter was varied from 10-40 μm with a typical length of 1 mm. We characterize heating of the wires as a function of their diameters and length, and relate modifications of this heating to changes in the assumed laser-generated hot electron spectrum and directivity. As in recent nail experiments [4], the cones can serve as reservoirs for hot electrons, diverting them from passage down the wires. [1] R. J. Mason, and C. Cranfill, IEEE Trans. Plasma Sci. **PS-14**, 45 (1986). [2] R. J. Mason, J. Comp. Phys. **71,** 429 (1987). [3] J. King et al., to be submitted to Phys. Rev. Lett.. [4] R. J. Mason, M. Wei, F. Beg, R. Stephens, and C. Snell, in Proc. of ICOPS07, Albuquerque, NM, June 17-22, 2007, Talk 7D4.

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