Abstract Submitted
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e-PLAS calculation of short pulse heating in wire targets[1] R.J. MASON, Research Applications Corp, F.N. BEG, UC San Diego, R. STEPHENS, General Atomics, L. VAN WOERKOM, R.R. FREEMAN, The Ohio State University — The 2-D implicit hybrid simulation code e-PLAS has been used to model energy deposition and hot electron transport in a variety of wire targets (e.g. Cu wires with nail or cone heads) [1]. Implicit $E\&B$-fields [2] permit the use of large cells and time steps while avoiding finite grid heating. Van Leer background plasma fluids allow for ps-long simulations of $\sim$700 μm wires on a PC with economy. For $\sim$1.7x10^{20} W/cm^2 pulse intensities we compare results from the use of Cartesian and cylindrical modeling geometry. We probe the effects of cold background electron-ion scatter [3], resistive $E-$fields and hot electron drag on the background heating. Temperature limitation from target ionization is explored. $B-$field trapping of hot electrons generated near critical density is examined as a function of the emission isotropy, energy spectrum, and plasma gradient scale length. Integrated simulations of the absorption and hot electron generation will be discussed. [1] J. Pasley et al., Phys. Plas. **14,** 120701 (2007). [2] R. J. Mason, J. Comp. Phys. **71,** 429 (1987). [3] R. J. Mason, Phys. Rev. Lett. **96,** 035001 (2006).

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R.J. Mason
Research Applications Corp

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