Abstract Submitted
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The ePLAS code for high-intensity laser-matter interaction studies[1] R.J. MASON, Research Applications Corporation, M. WEI, F. BEG, J. KING, UCSD, R. STEPHENS, General Atomics, J. FERNANDEZ, M. HEGELICH, Los Alamos National Lab — The 2-D implicit hybrid simulation code e-PLAS has been developed to study inertial fusion targets undergoing intense short pulse laser illumination over large problem space and time scales. It treats the background target plasma electrons as a collisional Eulerian fluid and the ions as either a fluid or PIC particles-in-cell. Laser deposition near the critical surface converts the local cold electrons into a relativistic PIC component. Self-consistent *E- and B- fields* are computed by the Implicit Moment Method [1,2]. This permits the completion of full interaction simulations in only a few hours of CPU time on a modern PC. Recent application has been made to cone -capped and nail-headed wire targets driven by sub-picosecond laser pulses at 1.06 μm and up to 4.0 x 10^{20} W/cm^2, as well as to the focusing of ions driven from the back side of thin foils. Discussion will be given to recent ePLAS improvements in the light absorption physics and fast ion modeling. [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).

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Rodney Mason
Research Applications Corporation

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