Abstract Submitted
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Conversion Efficiency and Electron Temperatures from Cone-Wire Targets at 1ω and 2ω DREW HIGGINSON, UCSD/LLNL, H. SAWADA, UCSD, P.K. PATEL, A. LINK, T. MA, S. WILKS, A. KEMP, T. BARTAL, C.D. CHEN, M. KEY, H.S. MCLEAN, LLNL, K. FLIPPO, S. GAILLARD, LANL, P.A. NORREYS, RAL, S. BATON, F. PEREZ, H.-P. SCHLENVOIGT, LULI, R.R. FREEMAN, G.E. KEMP, L.D. VAN WOERKOM, OSU, E. GIRALDEZ, R.B. STEPHENS, GA, L.C. JARROTT, T. YABUUCHI, F.N. BEG, UCSD — Frequency doubled (2ω) lasers have distinct advantages over conventional 1ω lasers in Fast Ignition (FI) fusion, which lead to higher coupling of hot electrons and favorable hot electron temperatures (Thot). Investigation was performed with 2ω high-contrast (pico2000), 1ω high-contrast (Trident) and with 1ω low-contrast (Titan). Identical cone-wire (Au/Cu) targets were used as surrogate FI targets. A calibrated spectrometer measured electron-to-wire coupling, revealing a 3x increase in the high-contrast case. A crystal imager viewed Kα emission along the wire and allowed electron temperature to be inferred. The data shows a strong dependence of Thot on $I\lambda^2$. Using the hybrid-PIC transport code LSP absolute electron coupling and Thot were deduced. These simulations included restive effects and vacuum boundaries to capture the complete physics. This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344 and DE-AC52 07NA27344(ACE).

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