

Abstract Submitted
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Supersonic Propagation of a K-Shell Ionization Front in Metal Targets P.M. NILSON, G. FIKSEL, A.A. SOLODOV, C. STOECKL, C. MILEHAM, W. THEOBALD, J.R. DAVIES, D.H. FROULA, R. BETTI, D.D. MEYERHOFER, Fusion Science Center and Laboratory for Laser Energetics, U. of Rochester — The supersonic propagation of a K-shell ionization front has been measured in high-energy-density metal targets using 1-D monochromatic streaked x-ray imaging. The ionization front was driven by hot electrons generated by a 10-ps laser pulse focused to an intensity of 10^{18} W/cm². The data show the ionization front travelling at $0.11c \pm 0.02c$. The measurements are in good agreement with implicit-hybrid particle-in-cell and collisional-radiative code calculations that predict the hot-electron transport and the K-shell ionization front dynamics. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

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