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Tracking Intense Flows of Energy Inside OMEGA EP Laser-Irradiated Metal Targets P.M. NILSON, J.R. DAVIES, A.A. SOLODOV, R. BETTI, D.D. MEYERHOFER, Laboratory for Laser Energetics and Fusion Science Center, U. of Rochester, G. FIKSEL, C. STOECKL, P.A. JAANIMAGI, C. MILEHAM, W. THEOBALD, J.F. MYATT, D.H. FROULA, Laboratory for Laser Energetics, U. of Rochester — Generating intense flows of energy inside matter is essential for a wide range of basic and applied high-energy-density science. A new, monochromatic, streaked x-ray crystal imager has been developed and deployed on the OMEGA EP laser to study collisional ionization-wave dynamics driven by hot electrons inside a metal. Spatial, spectral, and temporal resolution is obtained by coupling a spherically bent crystal imager to a 2-ps-resolution x-ray streak camera. The instrument measures the spatial location of the Cu K_α emission across a 1-D lineout of a thin-foil target as a function of time with a spatial resolution of $\sim$10 μm, tracking the hot-electron flow through the background plasma. The performance of and initial results from this unique diagnostic will be presented. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

P.M. Nilson
Laboratory for Laser Energetics and Fusion Science Center, U. of Rochester

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