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Short-Pulse High-Intensity Laser Generated Electrons Transport in solid targets KRAMER AKLI, M. KEY, S. HATCHETT, R. SNAVELY, G. GREGORI, A. MACKINNON, D. HEY, J. KING, R. TOWN, S. WILKS, LLNL, R. FREEMAN, L. VAN WOERKOM, D. CLARK, N. PATEL, K. HIGHBARGER, R. WEBER, Ohio State University, R. STEPHENS, General Atomics, P. NORREYS, K. LANCASTER, J. GREEN, C. GREGORY, RAL, F. BEG, S. CHEN, UC San Diego, C. STOECKEL, W. THEOBALD, LLE — Understanding the propagation and energy deposition of relativistic electrons generated by high-Intensity short-pulse laser is essential to fast ignition. We conducted a systematic study of the electron beam energy transport using the Vulcan laser facility in the United Kingdom. The laser Energy was 400 J delivered in either 1ps or 10ps. We used a 5 μm thick Molybdenum targets with two different layers. The Vanadium layer was 1 μm thick and located at the back of the target. The Nickel layer was 0.5 μm thick and located at various depths into the target. Highly Ordered Pyrolytic Graphite Crystal (HOPG) was used to obtain the X-ray spectra generated by the interaction of the laser pulse with the solid targets. The experimental results will be presented and the modeling will be discussed. This work was performed under the auspices of U.S. Department of Energy by The University of California, Lawrence Livermore National Laboratory under Contract No. W-7405-Eng-48. Some of this work was undertaken as part of a United Kingdom university collaboration funded by CCLRC.

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