Abstract Submitted
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The Scaling of Positron Production in Intense Laser-Solid Interactions[1] HUI CHEN, A. LINK, F. FIUZA, A. HAZI, S.R. NAGEL, J. PARK, R. TOMMASINI, G.J. WILLIAMS, LLNL, Y. SENTOKU, U. Reno Nevada, D.D. MEYERHOFER, J.F. MYATT, LLE, P. AUDEBERT, LULI, R. FEDOSEJEVS, S. KERR, U. Alberta, M. HILL, D. HOARTY, L. HOBBS, S. JAMES, AWE — The dependence of positron yield on laser energy was observed to be nonlinear through experiments using the laser facilities at Jupiter, OMEGA EP, and ORION for laser energies of 100 - 1500 J and intensities of $10^{18} - 10^{20}$ Watts/cm^2. The measured yield increases as $\sim$E^2, faster than that predicted by simple estimates using GEANT4. This scaling results from a combination of higher energy electrons produced at increased laser intensity and the presence of unexpected recirculation of MeV electrons in the mm-thick target. Experimental results together with analytical and Monte-Carlo simulations of the data will be presented.

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