

Abstract Submitted  
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**Generation Mechanisms of Multi-MeV Electrons in Ultra-intense Laser Plasma Interactions and Applications**<sup>1</sup> SCOTT WILKS, H. CHEN, Lawrence Livermore National Laboratory, W.L. KRUEER, UC Davis, A.J. KEMP, P.K. PATEL, R. SHEPHERD, M. TABAK, Lawrence Livermore National Laboratory — We report on the analysis of recent data taken with a magnetic electron spectrometer on the TITAN laser at LLNL. The experiments consisted of ultra-intense laser pulses incident on solid planar targets at various angles, with and without intentional pre-pulses. We find that a few key parameters, namely the slope and the maximum electron energy, scale with laser intensity in a way that is somewhat different than simple ponderomotive scaling would predict, and discuss various mechanisms that may explain the discrepancy. We then consider two applications of these high energy electrons: as a bremsstrahlung source and a method to generate positrons. LLNL-ABS-405449.

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