

Abstract Submitted
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Emittance measurement of laser produced positrons¹ HUI CHEN, LLNL, J. SHEPPARD, SLAC, J. GRONBERG, S. WILKS, S. ANDERSON, A. HAZI, LLNL, S. KERR, U. Alberta, Canada, E. MARLEY, J. PARK, LLNL/UC. Davis, R. TOMMASINI, LLNL — Intense lasers have been shown to produce a large number ($\sim 10^{10}$) of quasi monoenergetic positrons in a short (ps) burst [1]. This suggests the possibility of using laser-generated positrons as injector sources for high-energy accelerators. One of the key parameters for evaluating this application is the positron beam emittance, a measure of the beam size and divergence. We performed a series of measurements on the Titan laser at Lawrence Livermore National Laboratory for this purpose. 1-D Pepper-pot, a standard technique, was used for a number of laser and target conditions. The emittance was also calculated using the Electron-Gamma-Shower (EGS4) code. This talk will present the experimental and simulation results, and their implication for this positron source for accelerators.

[1] Hui Chen, et al., PRL 105, 015003 (2010)

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