

Abstract Submitted  
for the DPP10 Meeting of  
The American Physical Society

**New results on the laser produced positrons using the TITAN and OMEGA EP lasers**<sup>1</sup> HUI CHEN, S. WILKS, LLNL, D.D. MEYERHOFER, LLNL, P. BEIERSDORFER, LLNL, F. DOLLAR, Uni. Michigan, K. FALK, Uni. Oxford, A. HAZI, LLNL, A. LINK, Ohio State Uni., C.D. MURPHY, Uni. Oxford, J. PARK, LLNL, J. SEELY, C.I. SZABO, NRL, R. SHEPHERD, R. TOMMASINI, LLNL, D. WELCH, Voss Sci., K. ZULICK, Uni. Michigan — We performed new experiments and simulations on generating positrons with intense lasers [1]. A cone shaped positron jet is produced by irradiating a gold target with an intense picosecond duration laser pulse. The jet has  $\sim 20$  degree angular divergence and a quasi-monochromatic energy distribution with energy 4 to 20 MeV. The conversion efficiency from laser energy to positrons in the jet is  $\sim 2 \times 10^{-4}$ . The positron angular and energy distributions are controlled by the laser and target conditions. The positron acceleration mechanism is identified experimentally as the sheath electric field on the rear surface of target. This talk will present the details of these new experimental and simulation results.

[1] Hui Chen, S. C. Wilks, D. D. Meyerhofer et al., PRL 105,015003 (2010)

<sup>1</sup>This work performed under the auspices of the U.S. DOE by LLNL under Contract DE-AC52-07NA27344 and was funded by LDRD #10-ERD-044.

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Date submitted: 01 Sep 2010

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