

Abstract Submitted  
for the DPP17 Meeting of  
The American Physical Society

**Recent Progress on Laser Produced Positron Research At LLN<sup>1</sup>**

HUI CHEN, M HERMANN, D KALANTAR, A KEMP, A LINK, S JIANG, D MARTINEZ, J PARK, B REMINGTON, M SHERLOCK, GJ WILLIAMS, LLNL, F BEG, B EDGHILL, UCSD, R FEDOSEJEVS, S KERR, U. Alberta, E D'HUMIERES, U. Bordeaux, F FIUZA, SLAC, L WILLINGALE, G FIKSEL, U. Michigan, N NAKAI, Y ARIKAWA, A MORACE, Y SENTOKU, ILE — We report the recent results on laser-produced relativistic electron-positron plasma jets. This includes: the prepulse [1] and material dependence of pair generation [2]; time dependent positron acceleration [3] and maximum achieved pair density [4]. We will highlight the results from recent experiments on the Omega EP laser testing nanostructured target to increase pair yield. We will also report on a newly commissioned platform using the NIF ARC lasers which was developed for efficient pair creation using 10 ps laser duration at near relativistic laser intensity. [1] Jaebum Park *et al.*, High Power Laser Science and Engineering **4** 26 (2016) [2] G. Jackson Williams *et al.*, Physics of Plasmas **23**, 123109 (2016) [3] Shaun Kerr *et al.*, this conference. [4] Brandon Edghill *et al.*, this conference.

<sup>1</sup>This work was performed under the auspices of the U.S. DOE by LLNL under Contract DE-AC52-07NA27344, and funded by LDRD (17-ERD-010).

Hui Chen  
LLNL

Date submitted: 18 Jul 2017

Electronic form version 1.4