

Abstract Submitted  
for the DPP13 Meeting of  
The American Physical Society

**Experimental measurements and modeling of the electron spectrum and betatron x-ray beam profile in a laser-wakefield accelerator<sup>1</sup>**  
NICHOLAS CHAVES, BRADLEY POLLOCK, ALETHIA BARNWELL, PAUL CAMPBELL, Lawrence Livermore National Laboratory, JESSICA SHAW, KEN MARSH, CHRIS CLAYTON, UCLA, ARTHUR PAK, JOSEPH RALPH, DAVID ALESSI, YU HSIN CHEN, Lawrence Livermore National Laboratory, SIEGFRIED GLENZER, SLAC, CHAN JOSHI, UCLA, FELICIE ALBERT, Lawrence Livermore National Laboratory — We have performed experiments using the 200 TW Callisto laser system at LLNL to produce GeV-class electron beams and keV Betatron x-rays. The laser was focused into various gas cells with sizes ranging from 3 to 10 mm that contained a mixture of gases (He, N, Ar). We correlated the measured electron beam to its corresponding x-ray beam profile. These experimental results are benchmarked against a code that solves the equation of motion of electrons oscillating in the plasma wake and by calculating the corresponding x-ray radiation spectrum and profile.

<sup>1</sup>This work was performed under the auspices of the U.S. Department of Energy under contract DE-AC52-07NA27344, and supported by the Laboratory Directed Research and Development (LDRD) Program under tracking code 13-LW-076.

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Date submitted: 12 Jul 2013

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