

Abstract Submitted  
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**Three-Dimensional PIC Simulation of Laser-Ion Acceleration from Ultrathin Targets**<sup>1</sup> B.J. ALBRIGHT, L. YIN, K.J. BOWERS<sup>2</sup>, B. BERGEN, B.M. HEGELICH, K.A. FLIPPO, J.C. FERNÁNDEZ, Los Alamos National Laboratory — One- and two-dimensional particle-in-cell simulations of the Break-Out Afterburner (BOA) [1] show that new ion acceleration regimes emerge when ultraintense, high-contrast lasers impinge on ultrathin (10s of nm) targets. The BOA has now been demonstrated in three-dimensional (3D) simulations with solid-density targets using VPIC [2]. Comparisons of monoenergetic beams, maximum ion energy, and conversion efficiency have been made with 3D VPIC simulations of ion acceleration from high-contrast circularly polarized lasers [3] with identical intensity, spot size and target composition. Studies have been made of BOA for different intensity and target thickness. [1] Yin et al. LPB 24, 1-8 (2006) ; Yin et al. PoP 14, 056706 (2007). [2] Bowers et al., PoP 15, 055703 (2008). [3] Zhang et al., PoP 14, 123108 (2007); Robinson et al., NJP 10 013021 (2008)

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