

Abstract Submitted  
for the DPP06 Meeting of  
The American Physical Society

**Initial 3D VORPAL Simulations of Channeled LWFA<sup>1</sup>** JOHN CARY, University of Colorado, AMMAR HAKIM, Tech-X, DAVID BRUHWILER, Tech-X, CAMERON GEDDES, WIM LEEMANS, ERIC ESAREY, LBL — A series of two- and three-dimensional simulations of laser wake field accelerators have been carried out. The 2D simulations have been reasonably converged in spatial resolution. They show (as noted before) that the 2D dynamics can be very different from 3D, and that the 2D trapping process is very different for in-plane and out-of-plane electric field polarization with the ratio of produced charge varying by factors of several. In addition, the laser pulse itself undergoes complex dynamics from the time of trapping through the period of acceleration. Results of the convergence studies and the morphology will be presented.

<sup>1</sup>Work supported by the Office of High Energy Physics.

John Cary  
University of Colorado and Tech-X Corporation

Date submitted: 25 Jul 2006

Electronic form version 1.4