

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

TeV class afterburner and related issues CHENGGUN HUANG, UCLA, M.M. SIETH, D.K. JOHNSON, W. LU, C.E. CLAYTON, M. ZHOU, C. JOSHI, K.A. MARSH, W.B. MORI, UCLA, T. KATSOULEAS, P. MUGGLI, E. OZ, USC, F.-J. DECKER, P. EMMA, M. HOGAN, R. IVERSON, P. KREJCIK, R. ISCHEBECK, R. SIEMANN, D. WALZ, SLAC — The plasma afterburner concept utilizes the output beams from a linac and double the energy of a trailing beam by riding on the plasma wakefield of a drive beam. A TeV class afterburner has been envisioned for the future linear collider, ILC. We investigate TeV class afterburners with realistic ILC parameters. Several important issues such as the optimized wakefield, the head erosion for the drive beam and the hosing instability for both the drive and trailing beam, the betatron radiation and the ion motion in such scenario are studied using the quasi-static PIC model. Results from the simulations will be presented. Work supported by DOE under DE-FGO3-92ER40727, DE-FC02-01ER41179, and DE-FG02-03ER54721 and by NSF under PHY-0321345.

Chengkun Huang
UCLA

Date submitted: 22 Jul 2005

Electronic form version 1.4