

LIAR - A Computer Program for the Simulation and Modeling of High Performance

C. ADOLPHSEN, Linacs, R. ASSMANN, K. BANE, P. EMMA, T.O. RAUBENHEIMER, R. SIEMANN, K. THOMPSON, F. ZIMMERMANN,
SLAC - The computer program LIAR ("Linear Accelerator Research code") is a numerical simulation and tracking program for linear colliders. The LIAR project was started at SLAC in August 1995 in order to provide a computing and simulation tool that specifically addresses the needs of high energy linear colliders. LIAR is designed to be used for a variety of different linear accelerators. It has been applied for and checked against the existing Stanford Linear Collider (SLC) as well as the linacs of the proposed Next Linear Collider (NLC) and the proposed Linac Coherent Light Source (LCLS). The program includes wakefield effects, a 4D coupled beam description, specific optimization algorithms and other advanced features. We describe the most important concepts and highlights of the program.