

CONTROL, STABILITY AND STAGING IN LASER WAKEFIELD ACCELERATORS

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Abstract

Laser driven plasma wakefields have recently accelerated electron beams with quasi-monoenergetic energy distributions and with gradients of ~ 100 GV/m. Stabilization and optimization of beam quality are now essential. Recent LBNL experiments have demonstrated control of self trapping, resulting in reproducible bunches at 0.5 GeV. Further optimization has been demonstrated using plasma density gradients to control trapping, producing beams with very low absolute momentum spread at low energies. Simulations indicate that use of these beams as an injector greatly improves accelerator performance and experiments are now underway to demonstrate such staging, which will be a crucial technology for laser driven linacs. This talk will cover recent progress in LWFA's to obtain more reproducible, higher quality beams and also cover staging prospects for high energy laser linacs.

**CONTRIBUTION NOT
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