

Abstract Submitted
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On the possibilities of LWFA in the self-guided nonlinear blowout regime for 15-100 Joule lasers ASHER DAVIDSON, ADAM TABLEMAN, PE-ICHENG YU, WEIMING AN, FRANK TSUNG, WARREN MORI, UCLA — The recent implementation of the quasi-3D algorithm into OSIRIS now make it possible to study scaling laws for LWFAs operating in the blowout regime for higher laser energies. We find that self-guiding is possible to at least 26 Rayleigh lengths, reaching energies above 10GeV. We then study how to optimize the energy gain for fixed laser energy, and find that shortening the pulse length and reducing the plasma density produces a higher energy beam.

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