

ABOUT ACCELERATORS FOR X-RAY FELS

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Abstract

Linac-based X-ray-free-electron lasers require very short bunches of high-brightness electron beams with peak currents of the order of kilo-Amperes and energies of the order of 10 GeV. Essential components of a typical drive linac are a laser driven photo injector, the accelerator and a bunch compression system. Non linear effects from external fields (f.i. rf curvature and higher order longitudinal dispersion) as well as self effects due to space charge, wakes and coherent synchrotron radiation have to be considered for machine design. These main components will be described in principle, the layout of some drive linacs will be discussed and the magnitude of higher order effects and of self effects will be estimated.

**CONTRIBUTION NOT
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