

Study of LWFA as Injectors for Synchrotron Light Sources

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In addition to their high beam energies and small facility footprint, the short bunch lengths customary for Laser Wakefield Accelerators make them very interesting as injectors for Synchrotron Light Sources. Exemplary investigations have been carried out using the ANKA storage ring. As the length of the electron bunch influences both the duration and the spectrum of the emitted Synchrotron radiation, particular emphasis has been put on the evolution of the longitudinal phase space. We show that it is possible to store a significant fraction of the injected electrons. However, the bunch length increases much faster than one might naively expect, reaching its equilibrium length within a few hundred turns.

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