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Beam dynamics optimization of the injector towards a compact ERL-based FEL test facility

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Energy Recovery Linac (ERL) recovers energy from the used electron beam to accelerate the subsequent beam, greatly reducing the power consumed by the accelerator and harmful radiation. The use of Free-Electron Laser (FEL) light sources based on ERL has considerable potential for future development. This paper focuses on the optimization of the injector and merger part of a compact ERL FEL test facility. By using multi-objective genetic algorithm, the emittance and beam size are optimized at the exit of injector.

Footnotes

Paper preparation format

Region represented

Asia

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