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Modeling of a high-current injector for beam optimization

Monday 11 August 2025 16:00 (2 hours)

End-to-end simulations of intense relativistic electron beams generated by linear induction accelerators (LIA) often involve two-step processes whereby the beam creation is simulated using particle-in-cell (PIC) methods before a handoff to less computationally-expensive methods, e.g. beam envelope solvers, to determine sufficiently robust beam tunes. Because of this hand-off, fields that affect the PIC simulation of the A-K gap region are usually untouched during the tuning process. To allow for magnetic guide field optimization including magnets close to the A-K gap, a machine learning model of an LIA injector system is under development to allow for rapid end-to-end simulations of the electron beam for use in beam optimization problems, e.g. automated magnetic transport field tuning.

Please consider my poster for contributed oral presentation

No

Would you like to submit this poster in student poster session on Sunday (August 10th)

No

Footnotes

Funding Agency

I have read and accept the Privacy Policy Statement

Yes

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