



Contribution ID: 842 Contribution code: TUPC44

Type: **Poster Presentation**

Single bunch tracking on the ten-pass ER@CEBAF energy recovery beamline

Tuesday, 21 May 2024 16:00 (2 hours)

The proposed ten-pass energy recovery linac (ERL) demonstration (five accelerating, five decelerating) at the CEBAF accelerator, ER@CEBAF, involves a multi-GeV energy range of a continuous electron beam. New CEBAF transverse optics were designed for this ERL demonstration. This redesign incorporates additional components in Arc A, including a path length chicane and new quadrupoles to ensure proper dispersion localization. The new five energy recovery passes with a shared arc transport scheme challenge the overall beamline optics design, including large beta functions in the CEBAF spreaders and recombiners. Here we discuss results of bunch tracking performed using the elegant tracking code for the full ER@CEBAF beamline.

Footnotes

Funding Agency

This material is based upon work supported by the U.S. Department of Energy under contract DE-AC05-06OR23177.

Paper preparation format

LaTeX

Region represented

North America

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Session Classification: Tuesday Poster Session

Track Classification: MC1: Colliders and other Particle and Nuclear and Physics Accelerators: MC1.A18 Energy Recovery Linacs (ERLs)