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Re-design of CEBAF optics for ER@CEBAF

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ER@CEBAF is an effort to demonstrate multi-GeV multi-pass energy recovery with a low beam current in CEBAF. The race-track-shaped CEBAF geometry allows its linacs to accommodate multiple energy beams simultaneously. However, five energy recovery passes complicate the beamline optics design process. Individual recirculating arcs each transport one beam energy, and are shared between accelerating/decelerating beams. Present CEBAF optics needs to be redesigned to accommodate this additional multi-pass ER scheme. Isochronous arcs are retuned to match with the solutions obtained from optimized 10-pass beamline. In this paper, we discuss the optics redesign process with the existing beamline for ER@CEBAF.

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Footnotes

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