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Exploratory splitter bend system designs for FFA@CEBAF

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An upgrade to the Continuous Electron Beam Accelerator Facility (CEBAF) at the Thomas Jefferson National Accelerator Facility (JLAB) is anticipated to provide an electron beam of over 20 GeV using the existing superconducting-RF linear accelerator and new fixed-field alternating (FFA) gradient recirculation arcs made up of Halbach-style permanent magnets. In the current design, the FFA arcs will carry six beams with energies of approximately 11, 13, 16, 18, 20, and 22 GeV which will require horizontal splitter lines to match the beam from the preceding linac. In this paper, we describe two alternative splitter beamline designs that are tuned to match the beam's Twiss parameters, R56, time-of-flight, bend-plane offset, and dispersion into the FFA cells.

Footnotes

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LaTeX

Region represented

North America

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