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Current status of permanent magnet radiation resiliency studies at CEBAF

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One possible future for Jefferson Lab's Continuous Electron Beam Accelerator Facility (CEBAF) lies in upgrading its maximum nominal energy using Fixed-Field Alternating-gradient (FFA) technology for its recirculating arcs. The current proposal aims to use permanent magnets to supply the fixed fields. One concern among reviewers is the degradation of these permanent magnets during operation due to the radiation environment in which they will be present. This work, funded by a Laboratory Directed R&D grant, aims to measure the magnet degradation in the CEBAF tunnel enclosure, and extrapolate to the energies expected from the upgrade. We present the latest results of this study, as well as plans moving forward.

Footnotes

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