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Fabrication and Measurement of New Inflector for g-2

Thursday, August 31, 2017 1:45 PM (1h 45m)

The new FNAL g-2 experiment is based on the muon storage ring previously used at BNL. The 1.45 T dipole magnetic field in the storage ring is required to have very high (1 ppm) homogeneity. The muon beam injected into the ring must be transported through the magnet yoke and the main superconducting coil cryostat with minimal distortions. The old inflector magnet shielded the main dipole fringe field inside the muon transport beam pipe, with an outer NbTi superconducting screen, and did not disturb the field in the area of circulating beam. Nevertheless, this magnet had coils with closed ends in which a large fraction of muon beam particles were lost. A new magnet has been designed and fabricated at FNAL, utilizing new end geometry with open ends to allow improved beam transport. The magnet has been fabricated and undergone warm measurements prior to installation in the experiment.

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