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The FNAL E989 g-2 straw tracker detectors

The FNAL E989 experiment is seeking to measure the anomalous magnetic moment (a_μ) of the muon to a precision (0.14 ppm): four times better than previously achieved and to extend the sensitivity to a muon electric dipole moment (EDM) by two orders of magnitude. The experiment will re-use the E821 BNL storage ring but will be upgraded with new detectors, kicker magnets, collimators and improved quadrupoles and field monitoring. The detector system comprises 24 lead-fluoride calorimeters and 3 straw tracker stations. The straw trackers are essential in measuring the beam profile, identifying lost-muons and pile-up and provide the means to probe the muon EDM. In this talk the design of the E989 straw trackers will be described and recent results of their performance from test-beams will be shown highlighting how the trackers will improve the systematic error determination in the a_μ measurement.

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Track Classification: Detector R&D and Data Handling