

Abstract Submitted
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A Dedicated Quality Control System for the g-2 Straw Tube Tracking System AARON EPPS, Northern Illinois University, THE MUON G-2 COLLABORATION COLLABORATION — The Fermilab Muon g-2 experiment will measure the anomalous magnetic moment of the muon to a precision goal of 140 parts per billion, which is a factor of four improvement over the previous E821 measurement at Brookhaven. The experiment will also extend the search for the muon's electric dipole moment (EDM) by approximately two orders of magnitude with a projected sensitivity down to 10^{-21} e*cm. Both of these measurements are made by an analysis of the modulation of the decay rate of the higher-energy positrons from the (anti-)muon decays recorded by 24 calorimeters and three straw tracking detectors. The straw tracking detectors will be used to cross-calibrate the calorimeter, identify pileup and muons lost from the storage region, and to measure the beam-profile. A tracker measurement of the up-down modulation of positrons will be used in the EDM analysis. Quality control in the straw tracking system is of particular importance, as the uncertainty in measurements taken by the tracking system will be determined by the quality of construction of the trackers. Important parameters include the position of the straw's wire and walls. A dedicated quality-control system has been designed to measure these parameters after construction. The wire position is determined using a moveable and collimated beta-emitting source with a scintillator trigger and the straw wall using an X-ray source. This talk will discuss the studies leading to the design of the quality control system and its construction.

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