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Straw Leak Testing for the Mu2e Tracker

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The Mu2e experiment at Fermilab will search for the neutrinoless conversion of a muon into an electron in the field of an Al nucleus, with a sensitivity improvement of four orders of magnitude over previous measurements. Observation of this process would be unambiguous evidence for physics beyond the standard model. The signature of muon to electron conversion is a monoenergetic electron with energy nearly equal to the muon mass. Precise tracking with minimal energy loss or multiple scattering is paramount to this measurement. The Mu2e tracker will consist of more than 20,000 thin-walled straw tubes operating in a vacuum of 10^{-4} torr. It is therefore essential that all straws be leak-tested before installation in the tracker. We will discuss the Mu2e tracker, as well as techniques and equipment developed for quickly and accurately measuring gas leak rates from individual straws.

Oral or Poster Presentation

Oral

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