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A New Search For Muon-to-Electron Conversion at Fermilab

The Mu2e collaboration will search for coherent, neutrino-less conversion of muons into electrons in the field of a nucleus with a sensitivity improvement of approximately 10,000 over existing limits. Such a lepton flavor-violating reaction probes new physics at a scale unavailable by direct searches at either present or planned high energy colliders. The physics motivation for Mu2e and the design of the muon beamline and spectrometer will be presented, along with a scheme by which the experiment can be mounted in the present Fermilab accelerator complex. We will also examine the prospects for increased sensitivity of as much as two orders-of-magnitude at the proposed Fermilab Project X Linac.

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