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## Mu2e: A New High-Sensitivity Muon-Electron Conversion Search at Fermilab

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Mu2e will search for coherent, neutrino-less conversion of muons into electrons in the field of a nucleus to a few parts in  $10^{-17}$ , a sensitivity improvement of a factor of 10,000 over existing limits. Muon-Electron conversion provides unique windows into new physics inaccessible to other lepton flavor violation searches and probes up to mass scales  $\sim 10^4$  TeV, far beyond the reach of present or planned high energy colliders. We present the design of the muon beamline and spectrometer, how the experiment fits in the current Fermilab complex, and discuss potential upgrades at Fermilab's Project X.

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