

The Mu2e Experiment: A Charged Lepton Flavor Violation (CLFV) Search

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Charged Lepton Flavor Violation (CLFV) processes are transitions involving electrons, muons, or tau leptons that do not preserve lepton family numbers, and they provide model-independent probes of new physics beyond the Standard Model. The Mu2e experiment at Fermilab will search for the CLFV neutrino-less muon-to-electron conversion in the presence of aluminum nuclei, through the detection of a single monoenergetic electron of 105-MeV energy as the signal. The Mu2e experiment aims for a single-event sensitivity of 3×10^{-17} , which will set an upper limit of 8×10^{-17} at 90% confidence level for the conversion-to-capture ratio, improving the current experimental limit by four orders of magnitude. This presentation discusses the detectors of the Mu2e experiment and the strategies to reduce experiment backgrounds. Recent developments in the experiment installation and commissioning are highlighted.

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