

The Mu2e Experiment

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The Mu2e experiment at Fermilab aims to measure the neutrinoless conversion of a negative muon into an electron, a reaction violating charged lepton flavor conservation. This process is extremely suppressed in the Standard Model, and an observation would constitute an unambiguous sign of new physics beyond the Standard Model. The conversion signal is characterized by a monochromatic electron with an energy slightly below the rest mass of the muon (104.97 MeV). We expect to reach a single event sensitivity on the ratio between the muon conversion and capture rate in aluminum of 3×10^{-17} at 90% CL after three years of data taking.

We present an overview of the theory and motivation for the Mu2e experiment, our experimental design, and the current status of the experiment. We also provide a brief summary of the proposed Mu2e-II experiment that would provide a factor of 10 improvement in sensitivity over Mu2e.

E-mail

tomo@caltech.edu

Collaboration name

Mu2e

Primary author: Dr MIYASHITA, Tomonari (Caltech)

Presenter: Dr MIYASHITA, Tomonari (Caltech)

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