

# The Mu2e Experiment

*Friday 19 July 2024 10:00 (15 minutes)*

The Mu2e experiment at Fermilab will search for the coherent, neutrino-less conversion of a negative muon into an electron in the field of an aluminum nucleus, an example of Charged Lepton Flavor Violation (CLFV). Observation of CLFV at Mu2e would be an unambiguous signal of physics beyond the Standard Model (BSM). Mu2e aims to improve previous sensitivity on the conversion rate by four orders of magnitude reaching a single event sensitivity of  $3\text{E-}7$ , exploring a wide range of BSM models and probing mass scales up to  $10^4$  TeV/c<sup>2</sup>. To achieve its goal, Mu2e utilizes a system of solenoids to create an intense pulsed muon beam. The background will be kept at a sub-event level through a high performing detector. The experiment is approaching a very important phase. Construction is almost complete. Commissioning will begin shortly and physics data-taking is scheduled to begin in 2027. This talk will explore the theoretical motivations, design, and current status of the Mu2e experiment.

## Alternate track

1. Beyond the Standard Model

## I read the instructions above

Yes

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**Session Classification:** Quark and Lepton Flavour Physics

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