

Mu2e: The Search for Muon to Electron Conversion at Fermilab

Tuesday, 2 August 2022 16:00 (30 minutes)

The Mu2e experiment, currently under construction at Fermilab, will search for the neutrinoless conversion of a muon into an electron in the field of an aluminum nucleus. A clear signature of this charged lepton flavor violating two-body process is given by the monoenergetic conversion electron of 104.97 MeV produced in the final state. The experimental apparatus consists of an intense pulsed proton beam interacting on a tungsten target; a set of superconducting magnets that selects negative muons; a segmented aluminum target that stops the muons; and a set of detectors used to both identify conversion electrons and reject beam and cosmic backgrounds. The experiment will need 3-5 years of data-taking to achieve a factor of 10^4 improvement on the current best limit on the conversion rate. After an introduction to the physics of Mu2e, we will report on the status of the different components of the experimental apparatus. We conclude with our current estimate of the experiment's sensitivity and discovery potential.

Attendance type

In-person presentation

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