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The Mu2e Experiment

The Mu2e collaboration will search for coherent, neutrino-less conversion of muons into electrons in the field of a nucleus with sensitivity of one detected event for a branching fraction of ˜2x10ˆ-17; this would improve on the existing upper limit by a factor of ˜10ˆ4. Such a lepton flavor-violating reaction probes new physics at a scale inaccessible to direct searches at either currently operating or planned high-energy colliders. The experiment both complements and extends the current studies at MEG and at the LHC. I will present the physics motivation for Mu2e and describe the design of the muon source and the experiment itself. I will also discuss the sources of background to the conversion signal and the expected performance of the experiment.

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