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Prospects for a High-Sensitivity Lepton Flavor-Violating Search at Fermilab ROBERT BERNSTEIN, Fermilab, MU2E COLLABORATION — The mu2e collaboration proposes to search for coherent, neutrinoless conversion of muons into electrons in the field of a nucleus with a sensitivity improvement of a factor of 10,000 over existing limits. Such a lepton flavor-violating reaction probes new physics at a scale unavailable by direct searches at either present or planned high energy colliders. The physics motivation for mu2e will be presented, as well as the design of the muon beamline and spectrometer. A scheme by which the experiment can be mounted in the present Fermilab accelerator complex will be described. Prospects for increased sensitivity using the Project X linac that is being proposed by Fermilab will be discussed.

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