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Search for Muon to Electron Conversion on COMET

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In the Standard Model, Flavor-changing-neutral-current (FCNC) in quark sector is predicted at loop level. In the lepton sector, the lepton-flavor-violation (LFV) was evident after the discovery of neutrino oscillation. In the SM, even considering the tiny masses and oscillation of neutrinos, the predicted decay rate for charged-lepton-flavor-violation (cLFV), such as muon-electron conversion, is still tiny (less than 10ˆ-54), which can not be detected in experiment. However, New Physics contributions can enhance the muon-electron conversion rate, and lead to observable signal. The COMET experiment is proposed to search for the muon-electron conversion with the sensitivity will be improved by order of 4 magnitudes comparing to the current upper limit. Any experimental evidence of cLFV will indicate signal of New Physics.

Category

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