

The cLFV/LNV searches and studies with the BES III experiment

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The charged Lepton Flavor Violation (cLFV) is highly suppressed in the Standard Model (SM) by the finite but tiny neutrino masses. Its branching fraction is calculated to be at a negligible level and so far none has been found in all the historical experiments, including searches in lepton (μ, τ) decays, pseudoscalar meson (K, π) decays, vector meson ($\phi, J/\psi, \Upsilon$) decays, Higgs decays etc.

This talk reviews the charged Lepton Flavor Violation process searches at BESIII experiment. We present the results of searches for the decay of $J/\psi \rightarrow e\mu$, using $(225.3 \pm 2.8) \times 10^6$ J/ψ events collected with the BESIII detector at the BEPCII collider. An upper limit on the branching fraction of $\mathcal{B}(J/\psi \rightarrow e\mu) < 1.6 \times 10^{-7}$ (90% C.L.) is obtained. The prospects and challenges with other channels and the future data are also discussed based on projections from MC simulation.

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