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Search for R-parity Violation induced Charged Lepton Flavor Violation at future lepton colliders

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Interest in searches for Charged Lepton Flavor Violation (CLFV) has continued in the past few decades, only since the observation of CLFV will indicate new physics beyond the Standard Model. As many future lepton colliders with high luminosities have been proposed, the search for CLFV will reach an unprecedented level of precision. Many model of physics beyond the Standard Mode (BSM) allow CLFV processes at tree level, such as R-parity-violating (RPV) Minimal Supersymmetric Standard Model (MSSM), which is a good choice for benchmark. In this paper, we perform a detailed fast Monte Carlo simulation study on RPV induced CLFV process at future lepton colliders, including 240 GeV circular electron positron

collider and a 6 or 14 TeV muon collider. As a result, we found that the upper limits of the τ related CLFV coupling will be significantly improved and some new limits on CLFV couplings can be set, which are inaccessible by low-energy experiments.

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