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Complementarity of muon charged lepton flavour violating processes in the MRSSM

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The Minimal R-symmetric Supersymmetric Standard Model possesses interesting features, which makes it an attractive alternative to the MSSM. Some of them can be observed in and are reflected by the lepton flavour violation processes. Notably, there is no $\tan\beta$ -enhancement for $g - 2$ of the muon and other dipole operators, resulting in very different predictions for lepton observables compared to the MSSM.

In the view of forthcoming experiments the bounds obtained from muon $g - 2$ and flavour violating observables on the model parameter regions are studied. In particular, we consider the influence of Yukawa-like lambda parameters of the superpotential and the off-diagonal entries of slepton mass matrices. Different scenarios are discussed, depending also on the mass spectra of the model and additional restrictions, imposed by the anomalous magnetic moment of the muon. We focus on the interplay between $\mu \rightarrow e\gamma$, $\mu \rightarrow e$ conversion and $\mu \rightarrow 3e$ and $g - 2$ of the muon and show that all of these observables are important to constrain the parameter space.

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