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Radiative neutrino masses, lepton flavor mixing and muon g – 2 in a leptoquark model

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We propose a leptoquark model with two scalar leptoquarks S_1 $\left(\bar{3},1,\frac{1}{3}\right)$ and \widetilde{R}_2 $\left(3,2,\frac{1}{6}\right)$ to give a combined explanation of neutrino masses, lepton flavor mixing and the anomaly of muon g-2, satisfying the constraints from the radiative decays of charged leptons. The neutrino masses are generated via one-loop corrections resulting from a mixing between S_1 and \widetilde{R}_2 . With a set of specific textures for the leptoquark Yukawa coupling matrices, the neutrino mass matrix possesses an approximate μ - τ reflection symmetry with $(M_{\nu})_{ee}=0$ only in favor of the normal neutrino mass ordering. We show that this model can successfully explain the anomaly of muon g-2 and current experimental neutrino oscillation data under the constraints from the radiative decays of charged leptons.

Author: ZHANG, di **Presenter:** ZHANG, di

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