

# Leptoquark induced neutrino masses and the discrepancy of muon $g - 2$

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Recent measurement of muon anomalous magnetic dipole moment (muon  $g - 2$ ), performed by the Muon  $g - 2$  Collaboration at Fermilab, differs from the Standard Model (SM) value calculated by the Muon  $g - 2$  Theory Initiative Group at the combined statistical significance of  $5.1\sigma$ . Taking at face value, such discrepancy could be an indication of some sort of new physics. In this paper, we explain the discrepancy in the context of a model with leptoquarks, usually denoted as  $S(3, 1, -1/3)$  and  $R(3, 2, 1/6)$ . In this model, the muon  $g - 2$  can receive a top-mass chiral enhancement. The neutrino masses are induced at both one- and two-loop levels. We found a texture, where the latter could be competitive to the former. Given that the model can simultaneously explain neutrino masses and muon  $g - 2$  anomaly, it leads to several interesting predictions for lepton-flavor-violating rates, which could be probed by future experiments. The effects on  $h \rightarrow \gamma\gamma$  and  $h \rightarrow Z\gamma$  decays will also be discussed.

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Leptons

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