

# New physics contributions to muon anomalous magnetic moment and kinetic mixing in left-right model

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We estimate the new physics contributions to the calculation of muon anomalous magnetic moment,  $a_\mu = \frac{g_\mu - 2}{2}$  in a  $U(1)_{L_\mu - L_\tau}$  extension of left-right symmetric model based on the gauge group  $SU(2)_L \times SU(2)_R \times U(1)_{B-L} \times SU(3)_C \times U(1)_{L_\mu - L_\tau}$ . The gauged  $U(1)_{L_\mu - L_\tau}$  symmetry helps in realising low-scale inverse seesaw mechanism for origin of neutrino mass and allows MeV scale mass for the associated  $Z_{\mu\tau}$  gauge boson which is required for explaining muon anomalous magnetic moment. The new  $Z_{\mu\tau}$  gauge boson when lies at MeV scale can also explain the unexpected dip in the energy spectrum of high energy cosmic neutrinos reported by the IceCube Collaboration. It is also capable of mediating interactions between dark matter particles and muons inside a NS. Since there are two  $U(1)$  groups in the model, we show kinetic mixing between them. We also show correlation plots for the variation of gauge coupling with the mass of  $Z_{\mu\tau}$  gauge boson.

## Secondary track (number)

**Primary authors:** Dr PRITIMITA, Prativa (Indian Institute of Technology, Bombay); Prof. YAJNIK, Urjit (Indian Institute of Technology, Bombay); Dr PATRA, Sudhanwa (Indian Institute of Technology, Bhilai); Mr MAJUMDAR, Chayan (IIT, Bombay); Ms SENAPATI, Supriya (IIT, Bombay)

**Presenter:** Dr PRITIMITA, Prativa (Indian Institute of Technology, Bombay)

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