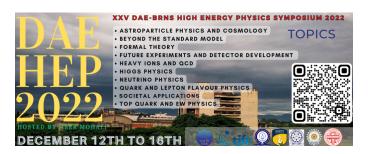
## XXV DAE-BRNS High Energy Physics Symposium 2022



Contribution ID: 132 Type: Poster

## Muon Anomalous Magnetic Moment and Neutrino Mass in $U(1)_{L_{\mu}-L_{\tau}}$ Extended Scotogenic Model

Thursday 15 December 2022 14:00 (1 hour)

The value of muon magnetic moment, recently, reported by Fermilab has  $4.2\sigma$  discrepancy with the theoretical prediction which is a robust signal for physics beyond the SM. In this work, we consider  $U(1)_{L_{\mu}-L_{\tau}}$  extension of the scotogenic model to explain non-zero neutrino mass and muon (g-2), simultaneously. It is known that muon neutrino trident (MNT) process put an upper bound on mass of gauge boson  $M_{Z_{\mu\tau}} < 300$  MeV to accommodate muon (g-2) anomaly. We have constrained the vev of scalar singlet responsible for the mass of gauge boson using low energy neutrino data. We find that there exist a range of  $M_{Z_{\mu\tau}}$  above 300 MeV giving consistent neutrino phenomenology. In this case, it is shown that muon (g-2) can be explained by adding a vector like lepton triplet with appropriate  $L_{\mu}-L_{\tau}$  charge such that it only couples to muon through inert doublet  $\eta$ . We have, also, investigated the implication of the model for CP violation and effective Majorana neutrino mass  $m_{ee}$  appearing in neutrinoless double beta  $(0\nu\beta\beta)$  decay process.

## Session

Neutrino Physics

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