IPA2022: Interplay between Particle and Astroparticle physics 2022

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(g-2) and neutrino masses

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Motivated by the experimentally observed deviations from the standard model predictions, we try to link the generation of light neutrino masses to the anomalous magnetic moment of the muon. We discuss two models in detail that can explain both observables at a relative low energy scale. First, we introduce a variant of the neutrino mass model originally proposed by Babu-Nandi-Tavartkiladze (BNT). Here we found that the heavy fermions of the model can be produced at the HL-LHC and, in the part of parameter space where the model explains the experimental anomalies, it predicts certain specific decay patterns for the exotic fermions. Later we discuss a variant of the Scotogenic model, where a low energy leptogenesis can be accommodated along with a viable dark matter candidate.

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