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Phenomenology of the Higgs sector of Dimension-7 Neutrino Mass Generation Mechanism

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In this talk, we revisit the dimension seven neutrino mass generation mechanism based on the addition of an isospin $3/2$ scalar quadruplet and two vector-like iso-triplet leptons to the standard model. We discuss the LHC phenomenology of the charged scalars of this model, complemented by the electroweak precision constraints. We pay particular attention to the triply charged and doubly charged components. We focus on the same-sign-tri-lepton signatures originating from the triply-charged scalars and comment on their prospects. On the other hand, doubly charged Higgs has been an object of collider searches for a long time, and we show how the present bounds on its mass depend on the particle spectrum of the theory. Strong constraint on the model parameter space can arise from the measured decay rate of the Standard Model Higgs to a pair of photons.

Summary

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