

Electroweak right-handed neutrinos in an extension of SM with one complex singlet

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Abstract content

We explore in detail the Higgs phenomenology that results in a model where right-handed neutrinos have a mass scale of the order of the electroweak scale. In this model all scales arise from spontaneous symmetry breaking, and this is achieved with a Higgs sector that includes an extra Higgs singlet in addition to the standard model Higgs doublet. The scalar spectrum includes two neutral CP-even states (h and H with $m_h < m_H$) and a neutral CP-odd state (σ) that can be identified as a pseudo-Majoron. The parameter of the Higgs potential are constrained using a perturbativity criteria. Higgs BR and cross-sections are discussed.

Summary

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