Contribution ID: **577**   Type: **Poster**

$0\nu\beta\beta$ in left-right theories with Higgs doublets and gauge coupling unification

We consider a version of Left-Right Symmetric Model with Higgs bidoublet (Φ) ($B - L = 0$), Higgs doublets ($H_{L,R}$) ($B - L = 1$) and a charged scalar (δ^+) ($B - L = 2$) leading to radiatively generated Majorana masses for neutrinos and thereby, leads to new physics contributions to $0\nu\beta\beta$. We have embedded the model in a non-SUSY $SO(10)$ GUT leading to successful gauge coupling unification. The model can also be extended to phenomenologically detect W_R, Z_R bosons in LHC and future collider searches. In the context of neutrinoless double beta decay, this model can saturate the present bound from GERDA and KamLAND-Zen experiments. Also, we briefly explain how keV-MeV range RH neutrino arising from our model can saturate various astrophysical and cosmological constraints and can be considered as warm Dark Matter (DM) candidate to address various cosmological issues.

Mini-abstract

Study of extended LRSM with gauge coupling unification and $0\nu\beta\beta$ signature.

Experiment/Collaboration

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Session Classification: Poster Session 1