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Title: Neutrino Mass in B-L Model and Left-Right Symmetric Model

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Abstract: Neutrino mass has been observed in some experiments. A Beyond Standard Model theory is required to explain the masses of Neutrinos. There are many possibilities out of which the present material is mainly focused on B-L Model and Left-Right Symmetric Model. Both models are introduced along with comparisons with Standard Model. An introduction to Neutrinoless Double Beta Decay is presented. Also the Effective Neutrino Mass in the standard mechanism is calculated explicitly. The Neutrinoless double beta decay can be mediated by many possible ways [Cha+12] 1 with WRs only with light neutrino exchange. (only eL as final particle) 2 with WRs only with heavy neutrino exchange. (only eR as final particle) 3 with WLs only with light neutrino exchange. (only eL as final particle) 4 with WLs only with heavy neutrino exchange. (only eR as final particle) 5 with WR, WL and with light neutrino exchange. (eL and eR as final particle) 6 with WR, WL and with heavy neutrino exchange. (eL and eR as final particle) Only two of the above have a significant contribution, which are shown in figure 5.1 and 5.9. We analyzed only these parts in different hierarchies. We calculated dependence of Dirac and Majorana phases on effective mass by plotting effective mass (due to above mentioned both Feynman diagrams) vs lightest mass in the normal hierarchy and inverted hierarchy.

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