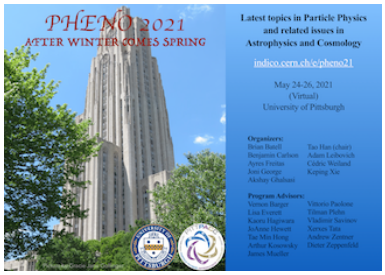

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Interference Effect in LNV and LNC Meson Decays for Left Right Symmetric Model

Tuesday 25 May 2021 15:30 (15 minutes)

We study the effect of interference on the lepton number violating (LNV) and lepton number conserving (LNC) three-body meson decays $M_1^+ \to l_i^+ l_j^\pm$, that arise in a TeV scale Left Right Symmetric model (LRSM) with degenerate or nearly degenerate right handed (RH) neutrinos. LRSM contains three RH neutrinos and a RH gauge boson. The RH neutrinos with masses in the range of M_N (MeV - few GeV) can give resonant enhancement in the semi-leptonic LNV and LNC meson decays. In the case, where only one RH neutrino contributes to these decays, the predicted new physics branching ratio of semi-leptonic LNV and LNC meson decays $M_1^+ \to l_i^+ l_j^{+-}$ and $M_1^+ \to l_i^+ l_j^{-+}$ are equal. We find that with at least two RH neutrinos contributing to the process, the LNV and LNC decay rates can differ. Depending on the neutrino mixing angles and CP violating phases, the branching ratios of LNV and LNC decay channels mediated by the heavy neutrinos can be either enhanced or suppressed, and the ratio of these two rates can differ from unity.

Summary

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