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Discriminating flavor models via neutrino oscillations through dark matter halo

In recent times several signatures of beyond standard model (SM) physics have appeared in a number of observables related to the semi-leptonic decays of B mesons. Further, the magnetic moment of muon also shows deviation from SM at the level of 4 sigma. A number of proposed new physics models can accommodate these anomalies. A class of these models also contain dark matter (DM) candidates. We intend to distinguish between a $L_\mu - L_\tau$ DM which is considered to reconcile the $(g - 2)_\mu$ anomaly and a heavier muonphilic DM candidate which can also account for the B-anomalies. We find that one type of the DM compels the neutrinos to change the flavor ratios whereas for the other type of DM, the neutrinos mimic the flavor ratio of the vacuum. The DM-neutrino interaction, thus, has the potential to discriminate between flavor models with a dark connection.

Collaboration / Activity

NA

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