

Fermion mass hierarchy in an extended left-right symmetric model

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I will describe a Left-Right symmetric model that provides an explanation for the mass hierarchy of the charged fermions within the framework of the Standard Model. This explanation is achieved through the utilization of both tree-level and radiative seesaw mechanisms. In this model, the tiny masses of the light active neutrinos are generated via a three-loop radiative inverse seesaw mechanism, with Dirac and Majorana submatrices arising at one-loop level. To the best of my knowledge, this is the first example of the inverse seesaw mechanism being implemented with both submatrices generated at one-loop level. The model contains a global $U(1)_X$ symmetry which, after its spontaneous breaking, allows for the stabilization of the Dark Matter (DM) candidates. The model is consistent with electroweak precision observables, the electron and muon anomalous magnetic moments as well as with the constraints arising from charged lepton flavor violation, dark matter and the 95 GeV diphoton excess.

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