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Mixing and mass Matrix of neutrino in the Two Higgs Doublet Model type III

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In this work we propose an extension to the Standard Model in which we consider a type-III two-Higgs-doublet model (2HDM-III) plus massive neutrinos and the horizontal flavor symmetry S3. Where the Yukawa matrices in the flavor-adapted basis are represented by means of a matrix with two texture zeros. Also, the active neutrinos are considered as Majorana particles and their masses are generated through the type-I seesaw mechanism. The unitary matrices that diagonalize the mass matrices, as well as the flavor-mixing matrices, are expressed in terms of fermion mass ratios. we compare, through a χ 2 test, the theoretical expressions of the flavor-mixing angles with the masses and flavor-mixing leptons current experimental data.

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