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$\mu - \tau$ reflection symmetry and magic neutrino mass matrix

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The searches for an underlying pattern in neutrino masses have motivated different proposals for textures in the neutrino mass matrix, which is also related to particular arranges of the mixing matrix. The current precise determinations of neutrino mixings have discarded some of the most studied proposals, such as the one involving a $\mu-\tau$ exchange symmetry. In this work, we investigate the relation of a still allowed $\mu-\tau$ reflection symmetry with the constraints of a magic pattern in the neutrino mass matrix. We show that both conditions cannot be fulfilled simultaneously in an exact but rather in an approximate way. These considerations may have some effects on the values of the CP-violating phases and in some observables like the neutrinoless double beta decay amplitude, which may be explored in future experiments.

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