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Lepton flavour violating processes in Minimal S_3 -invariant extension of the Standard Model

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Abstract content

A variety of lepton flavour violating effects related to the recent discovery of neutrino oscillations and mixing is here systematically discussed in terms of an S_3 flavour permutational symmetry. After a brief updated review of some relevant results on neutrino masses and mixings, that had been derived in the framework of a minimal S_3 -invariant extension of the Standard Model, we will give explicit analytical expressions for the matrices of the Yukawa couplings and the results of a computation of the branching ratios of some selected flavour-changing neutral current (FCNC) processes, as well as, the contribution of the exchange of neutral flavour-changing scalars to the anomaly of the muon's magnetic moment as functions of the masses of the charged leptons and the neutral Higgs bosons. It will be also shown that the $S_3 \times Z_2$ flavour symmetry and the strong mass hierarchy of the charged leptons strongly suppress the FCNC processes in the leptonic sector well below the present experimental upper bounds by many orders of magnitude. The contribution of FCNC to the anomaly of the muon's magnetic moment is small but non-negligible.

Summary

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