Contribution ID: **55**   Type: **not specified**

The flavour symmetry S_3

Tuesday, 7 December 2010 18:15 (25 minutes)

By introducing three Higgs fields that are SU(2) doublets and a flavour permutational symetry, S_3, in the theory, we extend the concepts of flavour and generations to the Higgs sector and formulate a Minimal S_3-Invariant Extension of the Standard Model. The mass matrices of the neutrinos and charged leptons are reparametrized in terms of their eigenvalues, then the neutrino mixing matrix V_PMNS, is computed and exact, explicit analytical expressions for the neutrino mixing angles as functions of the masses of neutrinos and charged leptons are obtained in excellent agrement with the latest experimental data. We also compute 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 magnetic moment of the muon as functions of the masses of charged leptons and the neutral Higgs bosons. We find that the S_3 x Z_2 flavour symmetry and the strong mass hierrchy 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.

Primary author: Prof. MONDRAGON, Alfonso (Institute of Physics/National Autonomous University of Mexico(UNAM))

Presenter: Prof. MONDRAGON, Alfonso (Institute of Physics/National Autonomous University of Mexico(UNAM))

Session Classification: T, C, P, CP symmetries, accidental symmetries (B, L cons.) (6)

Track Classification: T, C, P, CP symmetries, Accidental symmetries (B, L conservation)