

Department of Theoretical Physics

Special Free Meson Seminar

<i>Speaker</i>	:	Akin Wingerter (LPSC, Grenoble)
<i>Topic</i>	:	Tribimaximal Mixing from Small Groups
<i>Day, Date & Time</i>	:	Friday, October 29, 2010 at 11:30 a.m.
<i>Place</i>	:	Theoretical Physics Seminar Room (A304)

Abstract

Current experimental data on the neutrino parameters is in good agreement with tribimaximal mixing and indicates the presence of an underlying family symmetry. Using the Standard Model particle content and up to three flavor fields, we construct all models where the family symmetry is any of the 90 groups of order ≤ 100 that have a 3-dimensional irreducible representation. We derive the Lagrangian for the lepton sector, the mixing matrices, and finally the neutrino mixing angles. We compare our findings to experimental data and identify the cases (i) where tribimaximal mixing occurs, (ii) where the mixing angles are in agreement with the experimental constraints. Restricting θ_{12} and θ_{23} to their experimentally measured 1- or 3- σ ranges, we predict θ_{13} that is currently not known to very high precision. We explain the calculational tools that we have used and that we believe to be useful for model building. In particular, we work out one example in detail to illustrate our general approach.

(Nilmani Mathur)