



Poster session 3 – Wednesday 6 July

P3.045 **One-loop corrections to the fermion masses and flavour symmetries**

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Extensions of the Standard Model which explain non-vanishing neutrino masses and some of the peculiar features of the lepton mixing matrix by flavour symmetries always lead to a proliferation of scalars in the model. Then, the relation between Yukawa couplings and fermions in general involves several vacuum expectation values. It is therefore expedient to devise a renormalization procedure which is adapted to this situation. We will present first results of an ongoing PhD project addressing this subject. The idea is to calculate one-loop corrections to fermion masses in a toy model featuring an arbitrary number of Majorana or Dirac fermions and scalar fields, testing the stability of tree level predictions for masses and mixing angles and investigating the possibly large corrections at the one-loop level. Instead of using the mass parameters for renormalization, we will use a scheme that imposes renormalization conditions on the Yukawa couplings and vacuum expectation values. The analytic results in this framework will later be applied to explicit neutrino mass models known from the literature which often introduce specific flavor symmetries in the form of discrete symmetry groups. Then, the focus will lie on producing numerical results for the mass and mixing angle corrections in promising candidate theories, delivering data that can be compared to experiments.