

Neutrino and Flavour Models, from the Planck Scale to the Electroweak Scale

Thursday 30 June 2022 09:00 (30 minutes)

We discuss various approaches to the flavour problem of the Standard Model, including the LFU violation anomalies in B decays, in which the Yukawa couplings may be determined by symmetry or anarchy and may be renormalizable or effective. If the Yukawa couplings are effective, in principle the flavour scale can be anywhere from the Planck scale to the Electroweak scale, where SUSY/GUTs suggest a high scale theory, while LFU anomalies in B decays require a low flavour scale. In the symmetry approach, large neutrino mixing suggests the use of non-Abelian symmetry, possibly due to a finite modular symmetry, and we such discuss examples of this. We also discuss an anarchical example of fermion masses based on the Twin Pati-Salam gauge group, where the effective low scale Yukawa couplings arise from exchange of fourth family vector-like fermions, which also mediate the couplings to TeV scale vector leptoquarks which could be responsible for the LFU violation anomalies.

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