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Reconstructing Flavoured Leptoquark Models for B Decay Anomalies

Monday 2 July 2018 10:00 (30 minutes)

We perform a scan of non-Abelian discrete symmetries capable of quantizing Yukawa-type couplings appearing in leptoquark extensions of the Standard Model (SM). Leptoquark models with particular flavour structures, i.e. Yukawa textures, yield lepton non-universal signatures in B hadron decay observables, in particular the ratios R_{Dˆ(\star),Kˆ(star)} currently deviating from SM predictions. We assume that residual flavour symmetries control SM and leptoquark couplings and subsequently derive explicit representations of their generators, which by construction depend on free parameters from the respective Yukawa sectors. By scanning over quantizations of these parameters and closing the groups generated by the associated representations, we explore this model space in a bottom-up and model independent way, ultimately finding multiple finite groups capable of explaining observations.

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