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The origin of flavour anomalies from neutrino properties

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In this talk I will introduce a minimal extension of the Standard Model (SM) featuring two leptoquarks: a doublet with hypercharge $1/6$ and a singlet with hypercharge $1/3$. Such a particle content is well motivated by what I denote as flavoured-unified theories where families and forces are gauge interactions treated in the same footing. The presence of such a pair of leptoquarks induces radiative generation of neutrino masses at one-loop level without the need of introducing heavy right-handed states. Furthermore, the model's particle content can offer a simultaneous explanation for the current B-physics anomalies, whose significance is slowly but steadily increasing when compared to pure SM predictions, while keeping tightly constrained lepton flavour violation observables under control. I will discuss the close relation between B-physics anomalies and neutrino properties (masses and mixing angles) and whether such an economical framework can explain all at once, within experimental 2σ , or even 1σ , uncertainty bounds. Last but not least, I will also discuss whether lepton anomalous magnetic moments can be accommodated.

In-person participation

Yes

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