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Discussing lepton flavor violation(LFV) in $B \rightarrow$ tensor Decays

Tuesday 13 December 2022 14:00 (1 hour)

The measurements on lepton flavor universality violation in semileptonic $b \rightarrow s$ and $b \rightarrow c$ transitions hint towards a possible role of new physics in both sectors. Motivated by these anomalies, we investigate the lepton flavor violating $B \rightarrow K_2^*(1430)\mu^\pm\tau^\mp$ decays. We calculate the two-fold angular distribution of $B \rightarrow K_2^*\ell_1\ell_2$ decay in presence of vector, axial-vector, scalar and pseudo-scalar new physics interactions. Later, we compute the branching fraction and lepton forward-backward asymmetry in the framework of $U_1^{2/3}$ vector leptoquark which is a viable solution to the B anomalies. We find that the upper limits are $\mathcal{B}(B \rightarrow K_2^*\mu^-\tau^+) \leq 0.74 \times 10^{-8}$ and $\mathcal{B}(B \rightarrow K_2^*\mu^+\tau^-) \leq 0.33 \times 10^{-7}$ at 90% C.L.

Session

Quark and Lepton Flavour Physics

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