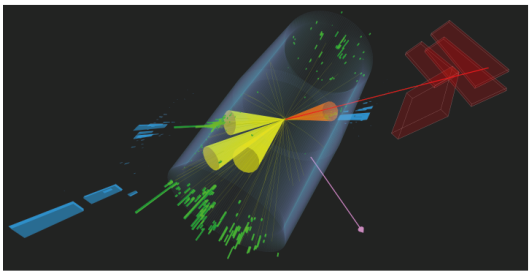

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Triplet vector boson and the flavor anomalies

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The triplet vector boson (TVB) is a simplified new physics model involving massive vector bosons transforming as a weak triplet vector, which it has been proposed as a combined explanation to the anomalous $b\to s\mu^+\mu^-$ and $b\to c\tau^-\bar{\nu}_\tau$ data (the so-called B meson anomalies). In this work, we carry out an updated view of the TVB model, including the Belle II perspectives. We perform a global fit to explore the allowed parameter space by the most current $b\to s\mu^+\mu^-$ and $b\to c\tau^-\bar{\nu}_\tau$ data, by considering all relevant low-energy flavor observables. Our results are confronted with the most recent LHC constraints. We also incorporate in our study the first measurement on the ratio $R(\Lambda c)=BR(\Lambda b\to\Lambda c\tau^-\bar{\nu}_\tau)/BR(\Lambda b\to\Lambda c\mu^-\bar{\nu}_\mu)$ very recently obtained by LHCb. In particular, we show that the TVB model can provide an explanation to the B meson anomalies; however, this framework is in strong tension with LHC bounds. In respect to future flavor measurements at Belle II, our results suggest that a small new physics window would be allow to solely explain the $b\to c\tau^-\bar{\nu}_\tau$ data in agreement with LHC constraints. Furthermore, the implications of our phenomenological analysis of the TVB model to some known flavor parametrizations are also discussed.

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