

Linking $R_{K^{(*)}}$ anomalies to H_0 tension via Dirac neutrino

The recently updated measurements from LHCb have strengthened the deviation of R_K , implying a stronger hint at new physics beyond the Standard Model. We show in this paper that, the long-standing $R_{K^{(*)}}$ anomalies can be explained by Dirac neutrinos embedded in a two-Higgs-doublet model. The explanation induces a thermalized right-handed Dirac neutrino in the early Universe, which contributes as extra radiation to the Hubble expansion and prompts a shift of the effective neutrino number, N_{eff} . In mimicking the favored scenarios for solving the Hubble (H_0) tension, we show that the simultaneous explanation of $R_{K^{(*)}}$ and H_0 via one-flavor right-handed Dirac neutrino can be readily tested or ruled out by the upcoming H_0 confirmation.

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