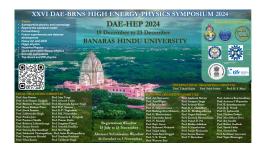
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Effect of light right-handed neutrinos on $\Upsilon(1S) \to B_{(c)} au ar{ u}_{ au}$ decay mode in the effective field theory framework

Driven by the persistent anomalies observed in the $b \to (u,c)\tau\bar{\nu}_{\tau}$ decays, we investigate these transitions within the framework of effective field theory, incorporating possible contributions from light right-handed neutrinos. By performing a global fit to the available experimental data, including measurements of $R_{D^{(*)}}$, $R_{J/\psi}$, R_{π} , $P_{\tau}^{D^*}$ the branching ratio for $B_c \to \tau\bar{\nu}_{\tau}$, and $B \to \pi\tau\bar{\nu}_{\tau}$, we determine the allowed ranges for the Wilson coefficients associated with various new physics scenarios. We then explore the impact of the constrained new parameters, specifically those arising from light right-handed neutrinos, on the semileptonic decay $\Upsilon(1S) \to B_{(c)}\tau\bar{\nu}_{\tau}$. Furthermore, we examine the existence of lepton non-universality in these decay modes.

Field of contribution

Phenomenology

Author: RAY, ATASI

Co-authors: Mr YADAV, Ajay Kumar (Central University of Karnataka, Kalaburagi); Dr SAHOO, Suchismita

(Central University of Karnataka, Kalaburagi)

Presenter: RAY, ATASI

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