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NP effects in $\Lambda_b \rightarrow \Lambda_c^{(*)}$ semileptonic decays.

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In the context of lepton flavor universality violation (LFUV) studies, we study different observables related to the $b \rightarrow c\tau\bar{\nu}_\tau$ semileptonic decays. These observables are expected to help in distinguishing between different NP scenarios. Since the τ lepton is very short-lived, we consider three subsequent τ -decay modes, two hadronic $\pi\nu_\tau$ and $\rho\nu_\tau$ and one leptonic $\mu\bar{\nu}_\mu\nu_\tau$. This way the differential decay width can be written in terms of visible (experimentally accessible) variables of the massive particle created in the τ decay. We present numerical results for the observables that can be accessed through the visible kinematics for the $\Lambda_b \rightarrow \Lambda_c$ and the $\Lambda_b \rightarrow \Lambda_c^*(2595)$ transitions. This work is based on JHEP 10 (2021) 122, JHEP 04 (2022) 026 and arXiv:2207.10529.

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