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LFU tests in semileptonic decays at LHCb

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The semileptonic decays of b-hadrons are a rich source of observables sensitive to Standard Model and New Physics parameters.

In the last decade, measurements of ratios of decay rates between the tauonic and the muonic tree level $b \rightarrow c$ transitions, have hinted at potential violations of the Lepton Flavour Universality, which require further investigation.

This talk presents the most recent results of LFU tests performed studying the semileptonic $b \rightarrow c$ transitions at LHCb:

the ratios of branching fractions of $B \rightarrow D(*)\tau\nu$ and $B \rightarrow D(*)\mu\nu$ decays, and the measurement of the D^* longitudinal polarization in $B \rightarrow D^*\tau\nu$ decays.

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