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b->c tau nu anomalies: NP & uncertainties

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Although no new heavy particles have been identified in the high-energy frontier yet, there are tantalizing tensions with the SM in B-meson decays measured at the LHCb and B factories. In particular, the b⟶ c τ ν transitions have been measured through the ratios RD(*). The average of the measurements is enhanced with respect to the SM and it would correspond to the tree-level exchange of a charged particle with mass Λ ~ 1 TeV and coupled selectively to τ leptons.

In this talk I will provide a short theory review of these decays, discussing the extent up to which the SM predictions are understood, the type of new physics one would need to explain the tensions and the complementarity with other observables such as the lifetime of the Bc meson or the angular analyses based on the final visible products resulting from the cascade decay of the tau.

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