

New Physics in $b \rightarrow c\tau\nu$: Impact of Polarisation Observables and $B_c \rightarrow \tau\nu$

Tuesday, 7 May 2019 16:15 (15 minutes)

In this talk I review the status of new physics in $b \rightarrow c\tau\nu$ transitions in the EFT framework of dimension-six operators. The fit results, including the recent measurement of $F_L(D^*)$, are presented for all one- and two-dimensional scenarios resulting from the tree level exchange of a single new particle. Particular emphasis is put on the constraint from the $B_c \rightarrow \tau\nu$ decay rate. I introduce a sum rule for the branching ratios of $B \rightarrow D\tau\nu$, $B \rightarrow D^*\tau\nu$ and $\Lambda_b \rightarrow \Lambda_c\tau\nu$ which holds for any NP contribution to the Wilson coefficients and predicts an enhancement of the latter decay w.r.t. the Standard Model. I discuss correlations between the polarisation observables in $B \rightarrow D\tau\nu$, $B \rightarrow D^*\tau\nu$ and their model-discriminating prospects. The talk is based on the results published in <https://arxiv.org/abs/1811.09603>.

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