

Mini-workshop on $D^{(*)}$ tau nu and related topics

Contribution ID : 24

New predictions for $R(D)$ and $R(D^*)$

Tuesday 28 Mar 2017 at 08:45 (00h35')

Content :

I discuss results of a new combined fit to the $B \rightarrow D^{(*)} \ell \nu$ decay distributions to predict the $B \rightarrow D^{(*)} \tau \nu$ rates and determine the CKM matrix element $|V_{cb}|$. Past theoretical and experimental papers neglected uncertainties in the predictions for form factor ratios at order $1/m$, which we include. We study in detail the theoretical uncertainties in the SM predictions for $R(D)$ and $R(D^*)$. We calculate $1/m$ and α_s contributions to for all possible $b \rightarrow c$ currents, which has not been available for all form factors, and allow us to determine with improved precision how new physics may affect the $B \rightarrow D^{(*)} \tau \nu$ rates. Our predictions can be systematically improved with more data; they need not rely on lattice QCD results, although these can be incorporated. (This talk is based on <https://arxiv.org/abs/1703.05330>)

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Session classification : --not yet classified--

Track classification : --not yet classified--

Type : --not specified--