

## Renormalisation scale setting for D-mixing

### Content

A naive application of the heavy quark expansion (HQE) yields theory estimates for the decay rate of neutral  $D$  mesons that are four orders of magnitude below the experimental determination. It is well known that this huge suppression results from severe GIM cancellations. We find that this mismatch can be solved by individually choosing the renormalisation scale of the different internal quark contributions. For  $b$  and  $c$  hadron lifetimes, as well as for the decay rate difference of neutral  $B$  mesons the effect of our scale setting procedure lies within the previously quoted theory uncertainties, while we get enlarged theory uncertainties for the semileptonic CP asymmetries in the  $B$  system.

### Summary

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