

Optimized Observables in non-leptonic decays

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We propose a set of new optimized observables using penguin mediated decays together with their CP conjugate partners that are substantially cleaner than the corresponding branching ratios, which are plagued by large end point divergences. We find that the dominant contribution to the uncertainties of these observables stem from the corresponding form factors. The Standard model estimate of some of these observables exhibit deviations from the corresponding experimental numbers at greater than the 2 sigma level. The pattern of deviations w.r.t these observables as well as the individual branching ratios suggest that a possible explanation might be new physics both in $b \rightarrow s$ and $b \rightarrow d$ transitions. We find that, taken one at a time, only the Wilson coefficients $C_{4d,s}^{NP}$ and $C_{8gd,s}^{NP}$ can potentially satisfy all the current experimental data on the branching ratios as well as the optimized observables for vector vector and pseudoscalar pseudoscalar final states.

Alternate track

1. Strong Interactions and Hadron Physics

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