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# Isospin analysis of Cabibbo suppressed two body weak hadronic decays of Bottom Mesons

## Isospin analysis of Cabibbo suppressed two body weak hadronic decays of Bottom Mesons

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The weak interactions in the heavy flavor sector are not yet fully understood, though the standard model provides a viable approach and deep insight into their basic structure. We have carried out an analysis of CKM-suppressed two-body hadronic decays  $\bar{B} \rightarrow KD/K^*D/KD^*$ , which involve two isospin states in the decay products, while including nonfactorizable contributions arising due to part of the weak Hamiltonian involving the colored currents. Since the nonfactorizable contributions are non-perturbative, they are difficult to calculate at present from the theory of strong interactions. Therefore, we have employed the isospin formalism in the phase independent manner. Using the experimental measurements for their branching fractions and extracting the strong interaction phases and factorizable decay amplitudes, we estimate the nonfactorizable isospin reduced amplitudes corresponding to these isospin states. We identify that in all the decay modes, the nonfactorizable isospin reduced amplitudes  $A_0^{n_f}$  bears the same ratio with  $A_1^{n_f}$  consistently, with in the experimental errors. The universality of this ratio may be exploited to estimate various parameters in weak decays of heavy mesons. We have also observed that present experimental data for  $B$  decays clearly shows the presence of FSI strong phases.

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## Field of contribution

Phenomenology

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