

## Weak B Decays into Orbitally Excited Charmed Mesons

Accuracy on the measurement of the Cabbibo - Kobayashi - Maskawa matrix elements demands a detailed knowledge of semileptonic decays of b -hadrons. In particular, decays involving orbitally excited c-mesons provide an important contribution to the total semileptonic width. Therefore, a better understanding of these processes will reduce the uncertainties in the above mentioned matrix elements. Moreover B and Bs meson weak decays into Ds(2317) and Ds(2460) open charm mesons can provide further information about the nature of these controversial states. Recently, BaBar Collaboration has reported [1] a study of B semileptonic decays into nal states containing charged and neutral D1(2420) and D2(2460), *the two narrow orbitally-excited charmed light mesons. Moreover the Belle Collaboration has measured [2] the branching fractions of the non leptonic decay  $B \rightarrow D S1(2536) \rightarrow DK$ . They also calculate different ratios involving B decays into Ds(2317) and Ds(2460) mesons.*

From a theoretical point of view these processes involve two steps: a weak decay of the B meson and a strong decay of the charmed meson. The matrix elements for semileptonic decays can be parametrized in terms of form factors which, within the spectator approximation, can be evaluated from the wave functions of the mesons involved in the decay [3]. We evaluate these wave functions using the Constituent Quark Model of Ref. [4] which successfully describes hadron phenomenology and reactions. Strong decay widths are calculated consistently within the same model using a 3P0 and a microscopic model, where the strong decay is driven by the same interquark potential which determines the meson spectrum.

In the case of the semileptonic decays, the theoretical results agree reasonably with the experimental values. The prediction obtained with the microscopic model is closer than those obtained with the 3P0 model. Comparison of our results with the prediction of heavy quark symmetry is also included.

Motivated by our good previous results about semileptonic B decays into P-wave charmed mesons we have extend our work to the exclusive B decays into P-wave charmed-strange mesons. Preliminary results suggest a more complicate structure than a simple  $q\bar{q}$  pair for some of these mesons.

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