

Control of SU(3) symmetry breaking effects in calculations of B meson decay constant

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Early B physics experiments have left us with a number of puzzles in heavy flavour physics. New lattice calculations and greater understanding of QCD effects in the Standard Model will be needed to support greater experimental precision in the coming years. In particular, the B meson decay constant is involved in calculations of CKM matrix elements and useful to measurements of the branching ratio $B \rightarrow \tau \nu$ expected at the Belle II Experiment.

We extend the QCDSF studies of SU(3) breaking of light decay constants into the heavy-flavour regime to examine the effects of SU(3) breaking on f_B and f_{B_s} . b -quarks are generated using an anisotropic clover-improved heavy-quark action.

The decay constants f_B and f_{B_s} will be presented for a variety of light quark masses, from the SU(3) symmetric point toward the physical quark masses. In order to focus on the SU(3) symmetry breaking effects in our extrapolation to the physical point, we choose u,d,s quark masses in each simulation such that the average quark mass, $m = m_u + m_d + m_s$, is constant and equal to its physical value. Results will be presented at a number of different lattice spacings and volumes, toward calculations of f_B and f_{B_s} at the physical point.

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