DECAY CONSTANTS AND SU(3) SYMMETRY BREAKING IN B-MESONS WITH QUENCHED RELATIVISTIC b-QUARKS

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Lattice QCD calculations of B-meson properties are an important part of precision tests of the Standard Model, including the calculation of Cabbibo-Kobayashi-Maskawa matrix elements. By combining lattice QCD measurements of the decay constants f_B and f_{Bs} with precision collider measurements of B-meson decays, we are able to constrain the values of various CKM matrix elements and facilitate searches for new physics.

Relativistic B-mesons can be measured in lattice QCD by using either an anisotropic lattice (which is computationally expensive) or by generating the *b*-quarks using an anisotropic action. We generate quenched *b*-quarks using an anisotropic clover-improved action and tune the bare mass, clover coefficient, and anisotropy in order to match the dispersion relation, spin-averaged B-meson mass, and hyperfine splitting between B^* and B to their physical values.

The decay constants f_B and f_{Bs} will be presented for several different 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 $m = m_u + m_d + m_s$ is constant and equal to the physical value of m. In the next stage of our simulations, we intend to produce form factors for semi-leptonic decays of B mesons, relevant to B decays at colliders.