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The scalar B meson in the static limit of HQET

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I will present results on the scalar B meson (B_0^*) sector using $N_f = 2$ $\mathcal{O}(a)$-improved Wilson-Clover fermions and the Heavy Quark Effective Field theory at the static limit to describe the b-quark. Since the scalar B meson lies near the B π threshold for our simulations set-up, we have implemented meson-meson as well as quark-antiquarks interpolating fields to disentangle the scalar B meson from the two particles states. Using the Generalized Eigenvalue Problem on the full basis, we are able to separate the two levels. Then, we compute the scalar B meson decay constant and the couplings h which parametrizes the Heavy Meson Chiral Perturbation Theory Lagrangian, more precisely the transitions between the $1/2^+$ and $1/2^-$ heavy-light mesons doublets. The couplings h may play a role in the chiral extrapolations when taking the nearest orbital excitations into account in chiral loops.

Primary author: Mr GÉRARDIN, Antoine (LPT)

Co-author: Dr BLOSSIER, Benoit (LPT)

Presenter: Mr GÉRARDIN, Antoine (LPT)

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