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The b-quark mass and the heavy-strange decay constant from lattice HQET

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We present our strategy to compute the b-quark mass and the heavy-strange decay constant, in heavy quark effective theory including $1/m$ corrections. By matching the effective theory and QCD in a small volume, one can determine non-perturbatively the bare parameters of the HQET Lagrangian and those of the heavy-light currents. The static, kinetic and magnetic energy of the heavy-light meson are obtained from large volume simulations. Using the GEVP method applied to all-to-all propagators allows us to isolate the ground state and the first excited state. I will show how the b-quark mass and the heavy-strange decay constant can be computed in this way, and I will present our preliminary results for the case of $n_f=2$ flavors of dynamical quarks.

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