Study of 1/m corrections in HQET

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Abstract: We study the matching condition of HQET with QCD including 1/m corrections. We introduce a new observable from the dependence of the heavy-light effective energy on the twisted boundary condition parameter θ, which could be used to match the kinetic term $\vec{D}^2/2m$. Carrying out quenched QCD simulations in small volumes with O(a)-improved Wilson fermions, we determine the static limit and 1/m coefficients of this observable. We also compare this result with HQET.