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Tuning of the strange quark mass with optimal reweighting

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Quark mass reweighting can be used to tune the mass of dynamical quarks. The basic idea is to use gauge field ensembles generated at some bare mass parameters to evaluate observables at different bare sea quark masses. This involves the computation of so called reweighting factors which are given as ratios of fermion determinants. In the case of simulations including the strange quark, reweighting can be used to improve the approach towards physical quark masses. Optimal reweighting strategies combine a change of the strange quark mass with a change of the light quark masses in order to minimize the fluctuations of the reweighting factor. We present numerical test of such strategies for recent CLS2 simulations and a software package for mass reweighting based on openQCD.

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