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Leading order mesonic and baryonic SU(3) low energy constants from $N_f = 3$ lattice QCD

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In the analysis of (lattice) QCD observables very often chiral perturbation theory (ChPT) is heavily used to describe the quark mass dependence or relate different observables via symmetry relations. Within ChPT the low energy constants (LECs) play a crucial role and their precise knowledge is important in lattice QCD as well as in phenomenology. While there are many lattice determinations of the LECs in SU(2) ChPT, the SU(3) LECs are less well determined.

We will present our results for the leading order mesonic (B_0, F_0) and baryonic (m_0, D, F) SU(3) ChPT LECs from $N_f = 3$ flavour lattice QCD. In our study we employ a subset of the $N_f = 2 + 1$ flavour Coordinated Lattice Simulations (CLS) gauge ensembles, denoted as the symmetric line which incorporates exact flavour symmetry, i.e., $m_\ell = m_s$. The ensembles cover a range of different pion masses as well as 6 different lattice spacings and different volumes. This allows us to perform a controlled extrapolation of all LECs to the chiral, infinite volume and continuum limit.

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