



Contribution ID: 293

Type: **Parallel Talk**

On the Baryon Octet: Sigma Terms in the continuum limit from $N_f = 2 + 1$ QCD with Wilson fermions

Monday, 31 July 2023 14:30 (20 minutes)

A lot of progress has been made in the direct determination of nucleon sigma terms. Using similar methods we consider the sigma terms of the other octet baryons as well. These are determined on CLS gauge field ensembles employing the Lüscher-Weisz gluon action and the Sheikholeslami-Wohlert fermion action with $N_f = 2 + 1$. The ensembles analysed here have pion masses ranging from 410 MeV down to 216 MeV and lattice spacings covering a range between 0.039 fm and 0.098 fm.

To tackle the well-known problem of excited state contamination we have studied the effect of different multi-state fits on the sigma terms. In order to investigate the systematic error arising from the varied treatment of the excited states we carry out the full analysis for different choices of multi-state fits. In the end, the sigma terms of the baryon octet are simultaneously extrapolated to the physical point taking the quark mass dependence and lattice spacing effects into account.

Topical area

Structure of Hadrons and Nuclei

Primary authors: PETRAK, Pia Leonie Jones; BALI, Gunnar (University Regensburg); COLLINS, Sara (University of Regensburg); HEITGER, Jochen (University of Münster); WEISHÄUPL, Simon

Presenter: PETRAK, Pia Leonie Jones

Session Classification: Structure of Hadrons and Nuclei