



Contribution ID: 266

Type: Oral presentation

Properties and ensembles of Stabilised Wilson Fermions

Wednesday, 28 July 2021 13:30 (15 minutes)

In this contribution we announce the formation of a new initiative to study Stabilised Wilson Fermions (SWF). They are an interesting new avenue for QCD calculations with Wilson fermions and we report results on our continued study of this framework: Tuning the clover improvement coefficient we extend the reach of lattice spacings to $a = 0.055, 0.064, 0.080, 0.094, 0.12$ fm. We further tune their flavor symmetric points $m_\pi = m_K = 412$ MeV and define the trajectories to the physical point by fixing Tr_M . Currently our pion mass range extends down to $m_\pi \simeq 180 - 200$ MeV. Results on control observables, such as the Dirac eigenvalue distribution, reweighting factors, etc., are shown. An accompanying talk by G. Pederiva will focus on spectroscopic observables. Taken together we observe the approach enables us to perform stable lattice simulations across a large range of parameters in mass, volume and lattice spacing.

Pooling resources our new initiative has made our reported progress possible and through it we will share generated gauge ensembles under an open science philosophy.

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Session Classification: Hadron Spectroscopy and Interactions

Track Classification: Hadron Spectroscopy and Interactions