Contribution ID: **397** Type: **Talk**

Scale setting from a combination of lattice QCD formulations with Wilson and Wilson twisted mass valence quarks

Friday 2 August 2024 14:55 (20 minutes)

We report about an update of a scale setting procedure of a mixed action setup consisting of $N_f = 2 + 1$ flavours of $O(a)$ improved Wilson sea quarks, based on CLS ensembles, and Wilson twisted mass valence quarks at maximal twist. We employ as external input the isoQCD masses and decay constants of pions and kaons, and the gradient flow scale t_0 as an intermediate scale. The analysis includes ensembles in the vicinity of the physical point and five values of the lattice spacing down to $a \approx 0.038$ fm. The determination of t_0 is carried out using three approaches: the unitary setup where Wilson quarks are used in the sea and valence sectors, the mixed action setup with Wilson twisted mass valence quarks, and by combining the data from the two previous cases. We observe that this combination leads to an improved control over the systematics uncertainties. We will furthermore explore the impact of setting the scale using solely f_π, instead of a flavour averaged linear combination of f_π and f_K.

Primary author: SAEZ-GONZALVO, Alejandro (IFT UAM-CSIC)

Co-authors: CONIGLI, Alessandro (HIM - JGU); PENA, Carlos (IFT UAM-CSIC); HERDOIZA, Gregorio (IFT UAM-CSIC)

Presenter: SAEZ-GONZALVO, Alejandro (IFT UAM-CSIC)

Session Classification: Standard Model parameters

Track Classification: Standard Model Parameters