



Contribution ID: 353

Type: **Oral Presentation**

The light quark masses from $N_f = 2 + 1$ CLS ensembles

Wednesday, August 10, 2022 2:00 PM (20 minutes)

We determine the strange quark mass and the isospin averaged up/down quark mass from QCD in the isospin limit. We utilize 46 CLS ensembles generated with $N_f = 2 + 1$ non-perturbatively $O(a)$ improved Wilson fermions comprising six lattice spacings in the range $a = 0.1$ fm down to $a = 0.04$ fm, spatial volumes with $LM_\pi > 4$ and pion masses ranging from around 420 MeV down to the physical point. The quark masses, obtained from axial Ward identities, are fitted simultaneously as functions of the squared pion and kaon masses with all correlations taken into account. The main source of uncertainty at present is from the renormalization of the quark masses and we check the universality of the continuum limit, employing different sets of renormalization constants, obtained from the step scaling function with Schrödinger boundary conditions as well as employing the RI'-SMOM scheme with a subsequent conversion to the $\overline{\text{MS}}$ scheme at the three-loop level.

Primary authors: BALI, Gunnar; COLLINS, Sara (University of Regensburg); SOELDNER, Wolfgang (University of Regensburg)

Presenter: BALI, Gunnar

Session Classification: Standard Model Parameters

Track Classification: Standard Model Parameters