



Contribution ID: 596

Type: **Oral presentation**

Gradient-flow scale setting with $N_f = 2 + 1 + 1$ Wilson-clover twisted-mass fermions

Friday, 30 July 2021 06:00 (15 minutes)

We present a determination of the gradient flow scales w_0 , $\sqrt{t_0}$ and t_0/w_0 in isosymmetric QCD, making use of the gauge ensembles produced by the Extended Twisted Mass Collaboration (ETMC) with $N_f = 2 + 1 + 1$ flavours of Wilson-clover twisted-mass quarks including configurations close to the physical point for all dynamical flavours. The simulations are carried out at three values of the lattice spacing and the scale is set through the PDG value of the pion decay constant, yielding $w_0 = 0.17383(63)$ fm, $\sqrt{t_0} = 0.14436(61)$ fm and $t_0/w_0 = 0.11969(62)$ fm. Finally, fixing the kaon mass to its isosymmetric value, we determine the ratio of the kaon and pion leptonic decay constants to be equal to $f_K/f_\pi = 1.1995(44)$.

Primary authors: ALEXANDROU, Constantia; BACCHIO, Simone (The Cyprus Institute); BERGNER, Georg; DIMOPOULOS, Petros (University of Parma); FINKENRATH, Jacob (The Cyprus Institute); FREZZOTTI, Roberto (University of Roma Tor Vergata); GAROFALO, Marco (University of Bonn, HSKP); KOSTRZEWA, Bartosz (University of Bonn); KOUTSOU, Giannis (The Cyprus Institute); LABUS, Peter (Fraunhofer-Institut for Industrial Mathematics); SANFILIPPO, Francesco (INFN - Sezione di Roma Tre); SIMULA, Silvano (Istituto Nazionale di Fisica Nucleare, Sezione di Roma Tre); UEDING, Martin; URBACH, Carsten (University of Bonn); WENGER, Urs

Presenter: KOSTRZEWA, Bartosz (University of Bonn)

Session Classification: Hadron Spectroscopy and Interactions

Track Classification: Hadron Spectroscopy and Interactions