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Nucleon structure at physical point in 2 + 1 flavor lattice QCD

Wednesday, 5 August 2020 16:00 (20 minutes)

We will present the current status of nucleon structure studies with physical light quarks (m_pi = 135 MeV) in a large spatial extent of about 10 fm. Our calculations are carried out with the PACS10 gauge configurations generated by the PACS Collaboration with the stout-smeared O(a) improved Wilson fermions and Iwasaki gauge action at beta=1.82 corresponding to the lattice spacing of 0.084 fm. In this talk, we mainly focus on the quark momentum and helicity fractions, which are regarded as bench marks on lattice calculations of parton distribution functions. In addition, we will also present the preliminary result of the axial charge with another PACS10 ensemble generated at the finer lattice spacing, so as to estimate the systematic uncertainties due to the lattice discretization error.

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