

Nucleon axial and pseudoscalar form factors from Lattice QCD simulations at the physical point

Tuesday, 31 October 2023 16:15 (20 minutes)

We present results for the nucleon axial and pseudoscalar form factors extrapolated at the continuum limit using three $N_f = 2 + 1 + 1$ twisted mass fermion ensembles with all quark masses tuned to their physical values. Convergence to the ground state matrix elements is assessed using multi-state fits. We study the momentum dependence of the three form factors and check the partially conserved axial-vector current (PCAC) hypothesis and the pion pole dominance (PPD). We show that in the continuum limit, the PCAC and PPD relations are satisfied. We also show that the Goldberger-Treiman relation is approximately fulfilled and determine the Goldberger-Treiman discrepancy.

Primary authors: BACCHIO, Simone; ALEXANDROU, Constantia (University of Cyprus & Cyprus Institute); KOUTSOU, Giannis (The Cyprus Institute); SPANOUEDES, Gregoris (University of Cyprus)

Presenter: BACCHIO, Simone

Session Classification: Parallel Workshop 2