



Contribution ID: 139

Type: **Talk**

Flavor structure of the nucleon axial form factor from lattice QCD

Thursday 6 November 2025 14:50 (20 minutes)

We present our work on the computation of the axial form factor of the nucleon from lattice QCD. We employ a set of $N_f = 2 + 1$ CLS ensembles with $O(a)$ -improved Wilson fermions and the Lüscher-Weisz gauge action, with lattice spacings ranging from 0.05 fm to 0.086 fm and pion masses spanning between 130 MeV and 350 MeV. To control excited-state effects, we employ multiple source-sink separations in combination with the summation method. The Q^2 -dependence of the form factors is parametrized using the z -expansion, and we perform simultaneous fits of all available source-sink separations for $Q^2 \leq 0.7 \text{ GeV}^2$. We summarize the results of the isovector and isoscalar octet form factors and report on ongoing work towards the isoscalar singlet channel and the full flavor decomposition, with particular focus on the strange-quark contribution.

Parallel Session (for talks only)

Structure of hadrons and nuclei

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Session Classification: Structure of hadrons and nuclei