



Contribution ID: 399

Type: **Oral Presentation**

Chiral-even twist-3 GPDs for the proton

Wednesday, August 10, 2022 5:10 PM (20 minutes)

“We present results on the chiral-even twist-3 quark GPDs for the proton using one ensemble of two degenerate light, a strange and a charm quark ($N_f = 2 + 1 + 1$) of maximally twisted mass fermions with a clover term, corresponding to a pion mass of 260 MeV. We employ the quasi-distribution method which relates lattice matrix elements of non-local operators defined in coordinate space to the light-cone distributions in the momentum (x) space. The approach requires momentum-boosted proton states and a matching formalism computed in Large Momentum Effective Theory (LaMET). In our calculation, we use three values of the momentum boost, namely 0.83, 1.25, 1.67 GeV. The GPDs are defined in the symmetric (Breit) frame, which we implement here with 4-vector momentum transfer squared of 0, 0.69, and 1.39 GeV², all at zero skewness.”

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Session Classification: Hadron Structure

Track Classification: Hadron Structure