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Moments of nucleon generalized parton distributions from the leading-twist expansion of the quasi-GPD matrix element

Tuesday, 28 March 2023 11:50 (20 minutes)

We present a lattice QCD determination of the nucleon generalized parton distributions (GPDs) from an analysis of the quasi-GPD matrix element within the leading-twist framework. We preform our study on a Nf=2+1+1 twisted mass fermions ensemble with a clover improvement. The faster and more effective lattice QCD calculations of GPDs using the asymmetric frames was applied so that we can achieve multiple momentum transfers t with reduced computational cost. The quasi-GPD matrix elements are renormalized using the ratio scheme and analyzed using the leading-twist Mellin operator product expansion (OPE) at the next-to-leading order. We find a robust result for the first non-vanishing Mellin moments <x> and <x^2 $> asa functionoft$.

Submitted on behalf of a Collaboration?

No

Participate in poster competition?

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