

Higher moments of parton distribution functions

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Higher moments of parton distribution functions (PDFs) have evaded lattice QCD calculations due to the well-known problem of power-divergent mixing with low-dimension operators towards the continuum limit. With a new proposal for smeared and angular-momentum projected operators presented in Phys. Rev. D 86, 054505 (2012), we obtain moments of several PDFs of the pion, including the high moments previously inaccessible to LQCD calculations, through a dedicated numerical study using a sequence of coarse to ultrafine quenched QCD ensembles generated with the proposal of Phys. Rev. D 92, 114516 (2015). Our preliminary results demonstrate the feasibility of extracting higher moments of PDFs of hadrons in future LQCD studies, complementing existing proposals for direct evaluations of quasi-PDFs.

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