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Higher moments of parton distribution functions using gradient flow

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Computing the parton distribution functions (PDFs) of hadrons from lattice QCD poses well known challenges due to the theory being formulated on discrete Euclidean spacetime. For example, power divergent mixing due to the reduced symmetry of the lattice theory precludes obtaining Mellin moments of PDFs starting at $<x^4> or higher, and requires the use of boosted states with poor signal-to-noise properties for <x^2> and <x^3>. In this work, we implement and test a recent proposal [1] to use gradient flow to circumvent the power divergent singlet PDF of the pion in the MSbar scheme, using ensembles at the SU(3) flavor symmetric point, generated with stabilized Wi$

[1] Moments of parton distribution functions of any order from lattice QCD, Andrea Shindler, arXiv:2311.18704

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