Abstract Submitted
for the APR21 Meeting of
The American Physical Society

QCD resummation in the lattice calculation of PDFs YONG ZHAO, Brookhaven National Laboratory, XIANG GAO, Tsinghua University and Brookhaven National Laboratory, KYLE LEE, Lawrence Berkeley National Laboratory, SWAGATO MUKHERJEE, Brookhaven National Laboratory — Many nowadays lattice QCD approaches to calculate the parton distribution functions (PDFs) rely on a factorization formula or effective theory expansion to extract them from certain Euclidean matrix elements in boosted hadron states. In the threshold region as $x \to 1$, the perturbative matching in the factorization or expansion formula includes large logarithms of $(1 - x)$ that need to be resummed, which could affect the prediction of the large-x behavior of PDFs. In this talk, we discuss the threshold resummation in the large-momentum effective theory and pseudo distribution approaches, and apply it to the lattice data for the pion valence quark PDF. Our analysis shows that with the current data quality and highest pion momentum $P^z = 2.4$ GeV, the effect of threshold resummation is negligible for the lowest moments and large-x behavior of the PDF.

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Date submitted: 11 Jan 2021 Electronic form version 1.4