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How Gluon Pseudo-PDF Matrix Elements Depend on Gauge Smearing

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We study effects of gauge smearing on the nucleon and meson gluon-PDF matrix elements, considering hypercubic smearing, stout smearing, and Wilson flow. The lattice calculations are carried out with $N_f = 2 + 1 + 1$ highly improved staggered quarks in ensembles generated by the MILC Collaboration. We use clover fermions for the valence action on one lattice spacing $a \approx 0.12$ fm and two pion masses $M_\pi \approx 310$ and 690 MeV. We probe the effects of gluon matrix elements with different smearing methods at various steps. We compute and compare the resulting nucleon and meson gluon PDFs using the pseudo-PDF method when using different smearing methods.

Topical area

Structure of Hadrons and Nuclei

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