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Extracting the Pion Distribution Amplitude from Lattice QCD through Pseudo-Distributions

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The Light-Cone Distribution Amplitude (DA) encodes the non-perturbative information of the leading Fock-component of the hadron wave function, therefore required for processes including exclusive hadron production. As the Pseudo-Nambu-Goldstone boson of QCD, nonperturbative structure of the pion is of particular interest. We present a lattice QCD calculation of the pion DA on ensembles with $O(a)$ -improved Wilson fermions on lattice spacings in the range of 0.0483fm - 0.0749fm , and pion masses ranging from physical to 440MeV . The Pseudo-Distribution formalism is employed to match the Renormalization Group Invariant (RGI) matrix element to the DA.

Topical area

Structure of Hadrons and Nuclei

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