

Lattice 2024



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Hadron Structure via PDFs

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Parton Distribution Functions (PDFs) are essential ingredients in realistic cross-section calculations within the framework of perturbative QCD. They describe the x -dependent structure of hadrons based on global analyses of hard-scattering measurements. PDFs play a crucial role in the search for new physics and precision measurements at hadron colliders, making the control of PDF uncertainties paramount. A limitation of PDFs from global analyses is their larger uncertainty in regions where experimental data is scarce. Starting from first principle operator definitions of PDFs, PDF-related quantities are computed in the framework of Lattice QCD, and they provide comparisons and supplements for PDF from global analysis. This presentation will discuss the current status and future prospects of PDF global analyses incorporating Lattice QCD inputs, highlighting their potential to enhance our understanding of hadron structure.

Primary author: HOU, Tie-Jiun (University of South China)

Presenter: HOU, Tie-Jiun (University of South China)

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