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Precision calculation of the x-dependence of PDFs from lattice QCD

Wednesday 28 July 2021 14:00 (15 minutes)

In this talk, we present a model-independent calculation of the x-dependence of pion valence PDF with the large-momentum effective theory approach. In this calculation we adopt the most up-to-date theoretical developments on the systematic corrections, which include the hybrid renormalization scheme that rigorously renormalizes the lattice matrix elements at both short and long distances, as well as the two-loop matching kernel that allows for direct calculation of the x-dependence of the PDF without any model assumption. Therefore, we are able to make predictions for the PDF at $x \in [x_{\min}, x_{\max}]$ where the systematic uncertainties are under control, which is a firm step towards the stage of precision calculation.

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