

2024 Meeting on Lattice Parton Physics from Large Momentum Effective Theory (LaMET2024)



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Collins-Soper kernel from lattice QCD

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This work presents a determination of the quark Collins-Soper kernel from quasi-TMD wavefunctions using lattice QCD and LaMET. This is the first such determination with systematic control of quark mass, operator mixing, and discretization artifacts. Furthermore, this work also achieves systematic control over the imaginary part of the LaMET matching coefficients at small transverse momentum scales by including a leading infrared renormalon subtraction. In addition to the results on the quark Collins-Soper kernel, preliminary results of the ongoing lattice QCD calculation of the gluon Collins-Soper kernel will also be discussed.

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