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Collins-Soper Kernel for TMD Evolution from Lattice QCD

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The Collins-Soper kernel relates transverse momentum-dependent parton distribution functions at different energy scales. For small parton transverse momentum $q_T \sim \Lambda_{\text{QCD}}$, this kernel is non-perturbative and can only be determined with controlled uncertainties through experiment or first-principles calculations. I will describe an exploratory study using quenched lattice QCD to determine the $N_f = 0$ Collins-Soper kernel at scales in the range $250 \text{ MeV} < q_T < 2 \text{ GeV}$.

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