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Particle Physics at LPTHE

Mardi 29 Avril 2025, 14:00

LPTHE, library and zoom link below(Join Zoom Meeting https://cern.zoom.us/j/61244417639?pw Meeting ID: 612 4441 7639 Passcode: 048748) Domaines: hep-ph

Titre : Multi-partonic interactions and the twist expansion in deep inelastic scattering

Orateur : Zeno Capatti (University of Bern)

Résumé : The KLN theorem establishes that infrared divergences in partonmodel diagrams cancel when summed alongside diagrams that account for the simultaneous hard interaction of multiple partons within the same hadron. In this talk, I will present a perturbative model that naturally accounts for these additional diagrams, as well as a realistic notion of twist expansion for observables computed within it. I will explore its equivalence with the parton model on general grounds and via a direct next-to-leading-order calculation of the inclusive deep-inelastic-scattering cross-section. Additionally, I will discuss the analytic tools essential for this calculation, and in particular those relating to the evaluation of iterated discontinuities of Feynman diagrams. I will conclude by outlining how to extend the model to hadronic collisions.