

Flavor dependence of TMDs

Tuesday, 31 October 2023 17:00 (25 minutes)

In global extractions of Transverse momentum dependent (TMD) distributions, the limit of small transverse distances is constrained using the matching to collinear parton density functions (PDF). Naturally, the TMD-PDFs depend on the baseline PDF set used certain features of the former might be due to the latter, rather than genuinely due to TMD behaviour of the partons. To shed light on the issue, we study the influence of the PDF choice on the determination of unpolarized TMDPDFs and the description of TMD Drell-Yan-pair and Z-boson production data. We find that the selection of a PDF essentially biases the extraction of TMDPDFs, impacting the quality and shape of the distributions. This bias is alleviated once the PDF uncertainty is taken into account, making the non-perturbative TMD profile is flavor-dependent. This drives an improvement of the agreement between theory and experiment, substantially increase the uncertainty in extracted TMD distributions, and should be taken into account in future global analyses.

Presenter: Dr ZURITA, Maria (Complutense University of Madrid)

Session Classification: Parallel Workshop 2