EPS-HEP2023 conference



Contribution ID: 555

Type: Parallel session talk

The small k_T region in Drell-Yan production at next-to-leading order with the Parton Branching Method

Monday 21 August 2023 18:20 (15 minutes)

The Parton-Branching method (PB) allows the determination of Transverse Momentum Dependent (TMD) parton densities, which cover the region from very small to k_T . In the very small k_T region, the contribution from the intrinsic motion of partons (intrinsic k_T) plays a role, but also contributions of very soft gluons, which are resummed in the evolution equation. A detailed study shows the importance of very soft gluons (below a resolvable scale) to both the integrated as well as TMD parton densities.

The PB TMD parton densities together with a NLO calculation for the hard process in the MC@NLO style are used to calculate the transverse momentum spectrum of Drell-Yan pairs over a wide mass range. The sensitivity to the intrinsic k_T -distribution is used to determine its free parameters. Starting from the PB-NLO-HERAI+II-2018 set2 TMD parton distributions, the width of the intrinsic k_T -distribution is determined, resulting in a slightly larger width than in the default set.

The width of the intrinsic k_T -distribution is independent of the mass of the Drell-Yan pair and independent of the center-of-mass energy \sqrt{s} , in contrast to other approaches.

Collaboration / Activity

DESY CMS

Primary authors: TAHERI MONFARED, Sara (DESY); JUNG, Hannes (DESY); RAICEVIC, Natasa (H1/PODG (H1 / Uni Montenegro)); FAVART, Laurent (Université libre de Bruxelles); BUBANJA, Itana

Presenter: TAHERI MONFARED, Sara (DESY)

Session Classification: T06 QCD and Hadronic Physics

Track Classification: QCD and Hadronic Physics