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Type: Talk

Nonperturbative contributions to the low transversal momentum Drell-Yan pair production at NLO using the Parton Branchin Method

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The nonperturbative processes, the internal transverse motion of partons inside the hadrons (intrinsic- k_T) and the multiple soft gluon emissions which have to be resummed, are dominant contributions at low transversal momentum of the Drell-Yan (DY) pair cross section. Therefore, this part of the DY spectra presents a powerful tool for better understanding of such processes which is a focus of the study presented here. The study is performed using the Parton Branching Method which describes Transverse Momentum Dependent (TMD) parton densities and provides very precise description of DY p_T distributions in a wide range of collision energies and pair invariant masses.

The soft gluon contribution was varied by introducing minimal transversal momentum of a parton emitted at a branching and the parton intrinsic- k_T was estimated based on the best agreement between experimental results and the prediction. It has been observed that the reduction of the soft gluon emissions introduced by minimal momentum at a branching, requires more intense internal transversal motion (larger intrinsic- k_T) to describe experimental data. The intrinsic- k_T increases with the minimal transversal momentum in a branching and this rise is faster when the centre-of-mass collision energy is larger.

In this study we also examine how for the various soft gluon contributions the intrinsic- k_T depends on DY hard scattering scale, Q , by performing the intrinsic- k_T tuning for a wide range of DY pair invariant masses at several center-of-mass energies.

The DY transversal momentum distributions obtained with the tuned intrinsic- k_T for various contributions of the soft gluon emissions are analysed and compared in a wide range of collision energies and DY pair invariant masses.

Is this an abstract from experimental collaboration?

No

Name of experiment and experimental site

Public results of experimental measurements are used: CMS, ATLAS, D0, CDF, Phenix, E605

Is the speaker for that presentation defined?

Yes

Details

Internet talk

No

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