



Contribution ID: 185

Type: Oral presentation

Central $\mu^+\mu^-$ production via photon-photon fusion in proton-proton collisions with proton dissociation

Thursday, 1 May 2014 11:20 (20 minutes)

We report a study on the description of two-photon production of dimuons in proton-proton collisions. We focus on the region of high transverse momentum of the muon pairs, where contributions from proton dissociative events are important.

Here one must go beyond the Weizsaecker-Williams approximation of collinear photons and take the photon transverse momenta into account. The resulting formalism in the high-energy limit can be understood as a type of k_T -factorization where the transverse momentum dependent photon fluxes play the role of “unintegrated” photon densities.

We show that at large pair transverse momentum, the cross section becomes proportional to the unintegrated photon flux. The calculation of the unintegrated photon fluxes for dissociative events requires knowledge of proton structure functions in a broad range of x_{Bj} and Q^2 , which we will discuss.

We also show a comparison with the LPAIR Monte-Carlo code.

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Session Classification: WG2: Small-x, Diffraction and Vector Mesons

Track Classification: WG2: Small-x, Diffraction and Vector Mesons