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Evidence for saturation of gluon density in p-p collisions at LHC

The unintegrated gluon distribution U.G.D. is calculated assuming the saturation of the gluon density at low Q^2 [1].

Its parameters are found from the best description of the LHC data on the inclusive spectra of the charged hadrons produced in the mid-rapidity p-p collisions at low transverse momenta [2]. The U.G.D. obtained recently in [2] is different from the one presented in [1] at low transverse momenta of gluons and it describes satisfactorily the HERA data on the proton structure functions at low x. We got also the satisfactory description of the HERA data on the charmed and

beauty structure functions. The production of the open charm and beauty in p-p collisions LHC is also studied using the U.G.D. obtained in [2]. Analyzing the gluon saturation effect in detail we found that the last LHC data allow us to determine the saturation scale more precisely.

References.

[1].K.Golec-Biernat, M.Wusthoff, Phys.Rev.D60(1999) 114023.

[2].A.Grinyuk,H.Jung,G.Lykasov,A.Lipatov,N.Zotov, hep-ph/1203.0939; Proc. of MPI@LHC-2011, DESY, 2011, Hamburg, Germany.

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