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New TMD gluon density in the proton from the LHC data.

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We propose a new transverse momentum dependent (TMD) gluon distribution in the proton. Using the latest LHC data on the soft hadron production at small transverse momenta, we determine the parameters of the initial TMD gluon density, derived within the soft QCD model at the low scale $\mu_0 \sim 1 - 2$~GeV. Then, we apply the Catani-Ciafaloni-Fiorani-Marchesini (CCFM) evolution equation to extend the obtained TMD gluon density to the whole kinematical region. Using this TMD obtained at both low and large Q^2 data on hard processes of b-jet production, Higgs boson production and the structure functions F_{2c}, F_{2b} can be described quite satisfactorily.

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