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Measurement of the B^+ differential cross section as a function of transverse momentum and multiplicity density in pPb collisions at $\sqrt{s_{NN}} = 8.16$ TeV

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We present the first observation of the B^+ meson production suppression in high-multiplicity respect to low multiplicity pPb collisions at $\sqrt{s_{NN}} = 8.16$ TeV with data collected by the CMS detector during 2016 and corresponding to an integrated luminosity of 175 nb^{-1} . The measurement uses exclusive decay channel $B^+ \rightarrow J/\psi K^+$. The inclusive results show a good agreement with theoretical calculations from the FONLL within uncertainties. The cross section ratio measurements scaled by the charged-particle multiplicity density, from low to high multiplicity, shows a significant decrease on the p_T dependence with increasing charged-particle multiplicity density. Results may indicate interplays of beauty quark energy loss, diffusion effects models in high multiplicity events, and gluon saturation models in lower multiplicity events.

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