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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 chargedparticle 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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