

Measurement of Ξ_c^0 and Ξ_c^+ production as a function of multiplicity in pp collision at $\sqrt{s} = 13$ TeV

Measurements of the production of heavy-flavour hadrons in proton–proton (pp) collisions provide an important test of quantum chromodynamics (QCD).

The heavy-flavour production cross section can be calculated using the factorisation approach as a convolution of three factors: the parton distribution functions (PDFs), the partonic cross section calculated with perturbative QCD calculations, and the fragmentation functions (FFs). Recent measurements of the baryon-to-meson (Λ_c^+/D^0 , $\Sigma_c^{0,++}/D^0$, $\Xi_c^{0,+}/D^0$ and $BR_{X_c^0}/D^0$)

p_T -differential yield ratios in pp collisions are inconsistent with measurements in e^+e^- collision, indicating that the hadronization of charm quarks is not a universal process among different collision systems. The p_T -differential yield ratio of Λ_c^+/D^0 shows a significant multiplicity dependence, which implies that the modification of the hadronization mechanisms is multiplicity dependent. Therefore the measurement of the multiplicity dependence of Λ_c^+/D^0 yield ratio can provide further constraints on the study of charm hadronization.

Primary authors: FANG, t (Central China Normal University); 朱, 剑辉 (复旦大学)

Presenter: FANG, t (Central China Normal University)

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