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Charm-baryon production and fragmentation fractions in pp collisions with ALICE

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The production cross sections of open heavy-flavour hadrons can be obtained by the collinear factorisation approach of QCD, by means of a convolution of the initial parton distribution functions of the incoming partons, the perturbative QCD partonic cross section, and the fragmentation functions in e^+e^- , ep collisions. Recent measurements of charm-baryon production at midrapidity performed by ALICE in small collision systems show a baryon-to-meson ratio significantly higher than in e^+e^- collisions. This enhancement cannot be explained by model calculations considering charm fragmentation functions obtained in νe collisions and suggests that the charm fragmentation is not universal across collision systems. Therefore, measurements of charm-baryon production are crucial to investigate the hadronisation mechanism of charm quarks. Measurements of charm-baryon production in p-Pb collisions also provide information about Cold Nuclear Matter (CNM), helping to understand the possible presence of collective effects or the modification of hadronisation mechanisms.

In this contribution, the latest measurements of Λ_c^+ , $\Xi_c^{0,+}$, $\Sigma_c^{0,++}$, and the first measurement of Ω_c^0 baryons performed with the ALICE detector at midrapidity in pp collisions at $\sqrt{s} = 5.02$ and 13 TeV are presented. Also, the first measurements of the total charm cross section at midrapidity and the fragmentation fractions at midrapidity in pp collisions at the LHC including the charm baryons are discussed. In addition, the Λ_c^+ measurement down to $p_T = 0$ in p-Pb collisions will be discussed.

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