

Charm baryon production and fragmentation fractions in pp collisions with ALICE

Content

The production cross sections of open heavy-flavour hadrons can be obtained by the factorisation approach described as the convolution of the initial parton distribution functions of the incoming partons, the perturbative QCD partonic cross section, and the fragmentation functions for the hadronisation parametrised from measurements in e^+e^- collisions. Recent measurements of charm-baryon production at midrapidity performed by ALICE in small systems show a baryon-to-meson ratio significantly higher than that in e^+e^- collisions. These results are suggesting that the universality of charm fragmentation is not valid across different collision systems. Thus, measurements of charm-baryon production are crucial to study the charm quark hadronisation mechanism in pp collisions and its difference with respect to e^+e^- collisions, which is relevant also for the description of the heavy-flavour mesons. The charm baryon production measurements are crucial to estimate the $c\bar{c}$ production cross section. The measurements of charm-baryon in p-Pb collisions provides important information about Cold Nuclear Matter (CNM) effects and the useful tools to understand the possible presence of collective effects which could modify the hadronisation process.

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 detectors at midrapidity in pp collisions at $\sqrt{s} = 5.02$ and 13 TeV are presented. In addition, the first measurements of total charm production cross section and fragmentation fraction at midrapidity in pp collisions at the LHC including the charm baryons are presented. Furthermore, the new Λ_c^+/D^0 ratio measured down to $p_T = 0$ in p-Pb collisions as well as the nuclear modification factor R_{pPb} will be discussed.

Summary

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