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Charm baryon production measurements in small systems with the ALICE experiment at the LHC

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Heavy quarks (charm and beauty) are an effective tool to study the properties of the Quark-Gluon Plasma (QGP) formed in heavy-ion collisions at the LHC. Due to their large mass, they are produced during the early stages of the collisions in hard-scattering processes, on a time interval shorter than the QGP formation time. Thus, they experience the whole evolution of the system. The baryon-to-meson ratio is sensitive to the hadronisation mechanism. In particular, it is expected to be enhanced with respect to the proton-proton baseline if charm quarks hadronise via recombination with the surrounding light quarks in the QGP. Measurements of charm-baryon production in small systems (pp and p–Pb collisions) provide the reference necessary for interpreting results in Pb–Pb collisions. In addition, in pp collisions, they allow to study the hadronisation of charm quarks, and allow testing QCD calculations. Measurements in p–Pb collisions are fundamental to disentangle cold nuclear matter effects from those deriving from the presence of the QGP.

In this contribution, the latest ALICE measurements on the Λ_c baryon production and the Λ_c/D^0 ratio in pp and p–Pb collisions at $\sqrt{s}$ = 5.02 TeV will be presented. Results will be compared with theoretical expectations. In addition, the latest results on the multiplicity dependent production of the Λ_c baryon in pp collisions at $\sqrt{s}$ = 13 TeV will be discussed. Furthermore, the measurement of the Ξ_c baryon in pp collisions at $\sqrt{s}$ = 7 TeV will be presented. Finally, the latest updates on the measurements of the Ξ_c baryon in pp and p–Pb collisions at 5.02 TeV will be discussed together with the status of the measurement of the Σ_c baryon.

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