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Λ_c production in pp collisions at $\sqrt{s} = 13$ TeV with ALICE at the LHC

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Charm quarks are a powerful probe of the Quark-Gluon Plasma (QGP) formed in high-energy heavy-ion collisions. Produced in hard scattering processes on a timescale shorter than the QGP formation time, they experience the whole evolution of the medium interacting with its constituents. The measurements of charm-hadron production allow testing the mechanisms of in-medium parton energy loss. Moreover, the study of charm-baryon production in heavy-ion collisions and, in particular, the baryon-to-meson ratio, provides unique information on hadronisation mechanisms, constraining the role of coalescence and testing the predicted presence of diquark states in the medium.

Measurements of charm-baryon production in pp and p-Pb collisions are essential to establish a baseline for Pb-Pb collisions. In particular, the Λ_c/D_0 ratio 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. In this scenario, the presence of diquark bound states in the QGP could further increase the Λ_c production. Thus, charm baryons are ideal tools to investigate unexplored aspects of the QGP. The ALICE detector is well suited to detect charm baryons down to low p_T thanks to the excellent tracking, vertexing and particle identification capabilities.

In this poster, the new ALICE results about the Λ_c in pp collisions at $\sqrt{s} = 13$ TeV will be shown. The measurement of Λ_c production at mid-rapidity ($|y| < 0.5$) as a function of charged-particle multiplicity will be discussed.

Collaboration (if applicable)

ALICE

Track

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