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Latest ALICE results on charm and beauty hadronization mechanisms in pp collisions (remote)

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The study of heavy-flavour mesons and baryons in hadronic collisions provides unique access to the properties of heavy-quark hadronisation in the presence of large partonic densities, where new mechanisms of hadron formation beyond in-vacuum fragmentation can emerge. Performing these measurements in intervals of charged particle multiplicities provides sensitivity to understand whether different hadronisation mechanisms are at play in small and large hadronic colliding systems.

In this contribution, ALICE will present a selection of the latest charm and beauty production measurements in proton-proton (pp) collisions, which can shed light on the modification of the heavy-quark hadronisation mechanisms. New published results of the production of all prompt charm ground states in pp collisions at $\sqrt{s}$ = 13 TeV, which allowed us to measure the charm fragmentation fractions and the $c\bar{c}$ production cross section at midrapidity, will be shown. The new final measurement of non-prompt Λ_c^+ baryons in the same collision system will be discussed to provide a quantitative comparison between the hadronisation properties of beauty and charm hadrons.

New measurements of $\Xi_c^{0,+}$ production as a function of multiplicity in pp collisions at $\sqrt{s}$ = 13 TeV, of Ξ_c^0 production in p–Pb collisions at $\sqrt{s_{NN}}$ = 5.02 TeV and the first measurement of Ξ_c^0 production in Pb–Pb collisions at $\sqrt{s_{NN}}$ = 5.02 TeV will be also presented, shedding further light on the hadronisation of charm-strange baryons in different colliding systems. Finally, the status and prospects for the reconstruction of charm mesons and baryons on LHC Run 3 data, using the upgraded ALICE apparatus, will be shown for the first time.

Category

Experiment

Collaboration (if applicable)

ALICE

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