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Charmed meson and baryon production in pp collisions with ALICE at the LHC

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Heavy charm and beauty quarks are sensitive probes to study the Quark-Gluon Plasma produced in high-energy heavy-ion collisions. Because of their large masses, they are produced in the initial stage of the collision and therefore explore the entire evolution of the produced medium. ALICE, A Large Ion Collider Experiment located at the Large Hadron Collider at CERN, is a dedicated experiment for heavy-ion collisions. Besides Pb-Pb and p-Pb collisions, ALICE also studies heavy-flavour production in pp collisions.

The measurements of heavy-flavour production in pp collisions are an important test for perturbative QCD calculations. At low p_{T}, where the theoretical uncertainties are still relatively large, heavy-flavour production is dominated by low-x gluons, so measurements in this region can provide necessary constraints on the pQCD calculations. Measurements in pp collisions are also essential as baseline for heavy-ion analyses. For example the nuclear modification factor R_{AA}, which measures the effect of in-medium energy loss, uses the proton-proton reference measurement.

In this talk, the status of open charm meson and baryon production measurements in pp collisions at $\sqrt{s} =$ 5.02, 7, 8 and 13 TeV with the ALICE experiment during LHC Run-1 and Run-2 will be presented. These results will include the production cross section of D mesons at all three energies, multiplicity measurements at $\sqrt{s} = 7$ TeV and the measurements of the baryons Λ_c and Ξ_c at $\sqrt{s} = 7$ TeV. Comparisons with theoretical model predictions will be shown.

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