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Multiplicity dependence of $D^{*\pm}$ production in pp collisions at $\sqrt{s} = 13.6$ TeV with ALICE at LHC

Heavy flavour hadrons are key probes for the investigation of the initial stage as well as the evolution of the system created in heavy-ion collisions. In fact, the heavy quarks possess masses larger than the quantum chromodynamics (QCD) scale parameters and therefore are mainly produced in hard scattering processes with large momentum transfer Q^2 . For the same reason, their production in proton-proton (pp) collisions can be described by perturbative QCD calculations. In addition, the measurement of heavy-flavour hadrons as a function of the charged-particle multiplicity in pp collisions provides insights in the interplay between soft and hard processes and multi-parton interactions.

In this contribution, the first measurement of $D^{*\pm}$ production in different multiplicity classes using the large data sample of pp collisions at $\sqrt{s} = 13.6$ TeV collected by the ALICE experiment during the LHC Run3, are presented. This includes the measurement of the p_T -differential production cross section as well as the yield in different charged-particle multiplicity classes. Also, these results will be compared with lower LHC energies measurements.

Category

Experiment

Collaboration (if applicable)

ALICE Collaboration

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