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## Open heavy-flavour production in pp and p-Pb collisions with ALICE at the LHC

Heavy-flavour quarks at the Large Hadron Collider (LHC) are produced during the initial stages in hard scatterings processes in pp and p-Pb collisions. Due to their large masses, their production can be calculated with perturbative quantum chromodynamics (pQCD) and provide an essential baseline for the studies of heavy-flavour production in heavy-ion collisions. Measurements of heavy-flavour in p-Pb collisions allow us to investigate possible modifications of the charmed-hadron yields due to cold nuclear matter effects and provide a reference for the interpretation of the corresponding studies in Pb-Pb collisions.

The measurement of open heavy-flavour hadrons as a function of charged-particle multiplicity in small collision systems provides an excellent tool to understand the production mechanisms, fragmentation properties, and the interplay between the hard and soft processes. The influence of multiple parton interactions (MPI) on the production of open heavy-flavours and its dependence on total event multiplicity can not be neglected. More differential measurements as a function of event shape (sphericity) are also expected to improve the theoretical understanding of such mechanisms.

ALICE with high precision tracking, good vertex resolution, and excellent particle identification, allows for the reconstruction of D mesons ( $D^0$ ,  $D^+$ ,  $D^{*+}$  and  $D_s^+$ ) and charmed baryons ( $\Lambda_c^+$  and  $\Xi_c^0$ ), measurements of leptons from charm and beauty decays at central and forward rapidity, as well as reconstruction of jets with D mesons at central rapidity. We will present the recent results on charmed mesons and baryons production at mid-rapidity in pp collisions at  $\sqrt{s} = 5.02, 7, 8$  and 13 TeV and in p-Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, collected with the ALICE detector. In particular, we will show the production cross section, nuclear modification factor, yields as a function of charged-particle multiplicity, and  $D^0$  meson production as a function of event transverse sphericity. Recent results on the heavy-flavour production through leptonic decay channels will also be discussed, in particular for electrons from beauty hadron decays at mid-rapidity ( $|y| < 0.6$ ) and muons at forward rapidity ( $2.5 < y < 4$ ) in p-Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV. The results will be compared with theoretical model predictions.

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