

Strangeness in Quark Matter 2019



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Study of open heavy-flavour hadron production in pp and p-Pb collisions with ALICE

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Heavy quarks (charm and beauty) are effective probes to test perturbative QCD-based calculations in pp collisions and to study cold nuclear matter (CNM) effects such as gluon saturation, shadowing, kT broadening and energy loss in CNM in p-Pb collisions. In addition, the positive elliptic flow (v_2) of open heavy-flavour particles observed in semi-central Pb-Pb collisions at LHC energies suggested that heavy quarks suffered strong interactions in the deconfined QCD medium in a wide rapidity window and participated in the collective motion of the medium. Recent observations in pp and p-Pb collisions shown remarkable similarities with Pb-Pb collisions, which might suggest the presence of collectivity. To further explore the origin the collective-like effects observed in pp and p-Pb collisions, the study of open heavy-flavour production as a function of the charged-particle multiplicity naturally links soft and hard processes that occur in the collision and allows one to study their interplay.

In this contribution, the production cross sections of D mesons and open heavy-flavour decay electrons measured at mid-rapidity, and open heavy-flavour decay muons measured at forward rapidity in pp collisions at $\sqrt{s} = 5.02$ TeV with ALICE will be presented. The results of production cross section of open heavy-flavour decay electrons in pp collisions at $\sqrt{s} = 13$ TeV measured down to the low- p_T region will be also discussed. The self-normalized yield of open heavy-flavour decay electrons and muons as a function of multiplicity in pp and p-Pb collisions will be presented. Finally, the nuclear modification factor (Q_{pPb}) of D mesons and the v_2 of open heavy-flavour decay electrons and muons in p-Pb collisions will be discussed as well.

Collaboration name

ALICE

Track

Collectivity in small systems

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