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Open heavy-flavour production in pp and p -Pb collisions with the ALICE experiment

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Charm and bottom quarks are produced in hard processes, in the early stages of relativistic hadron-hadron collisions. Due to their large masses, their initial production yield is practically unaffected by the later stages of the reaction. Therefore they provide us with unique means for understanding several aspects of Quantum Chromodynamics, from pure pQCD processes, to energy loss and collective motion within a nuclear medium created in heavy-ion collisions.

Measurements of spectra in pp collisions serve as a benchmark for theory calculations as well as a reference for collisions of heavier systems. Multiplicity-dependence of the production may reveal the importance of multi-parton interactions, the interplay between the hard and soft regime of the interactions, as well as the connection between open and hidden production of heavy-flavour. Measurements in p -Pb collisions also account for cold nuclear effects, thus providing baseline for heavy-ion measurements. Correlations of D mesons and hadrons reveal charm fragmentation properties as well as possible collective effects in p -Pb collisions.

In this presentation we show recent open heavy-flavour results from pp collisions at $\sqrt{s} = 5.02, 7$ and 8 TeV, and p -Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV, collected with the ALICE detector during LHC Run 1. Hadrons containing charm and bottom are reconstructed via the semileptonic as well as hadronic decays. Charm measurements down to $p_T = 0$ will be shown for pp and p -Pb collisions. Prospects for heavy-flavour measurements in Run 2, with an increased energy and luminosity, will also be discussed.

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