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Heavy-flavour production measurements in ALICE

Open heavy-flavour hadrons are one of the key diagnostic tools available to study the dense, hot strongly interacting matter formed in relativistic collisions. The charm and beauty quarks are produced at the early stages of the collision via hard scattering due to their large bare masses, which exceed the QCD scale parameter (λ_{QCD}) significantly. Consequently in pp collisions, where the hot and strongly interacting medium is not expected to be formed, the measurement of heavy-flavour production serves as a reference for heavy-ion collisions, provides a crucial testing ground for pQCD models, as well as helps to understand hadronization mechanisms in vacuum. Multiplicity dependent measurements in pp collisions, are also valuable tools to investigate the hadronization mechanisms and characterize multiparton interactions; and helps to search for possible connections between small and extended interacting systems.

In this presentation, an overview of the latest results on the production measurements of heavy-flavour hadrons in pp and Pb–Pb of the ALICE collaboration will be presented. Charm and beauty fragmentation results will be discussed via the measurements of the yield ratios of different heavy-flavour hadron species, including studies as a function of multiplicity. In particular, the baryon-over-meson production ratio will be presented in both pp and Pb–Pb collisions. The multiplicity dependent self-normalised yields of heavy-flavour particles in pp collisions at $\sqrt{s} = 13$ TeV will also be shown.

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