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Charm production and hadronization in small collision system at the LHC with ALICE

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Heavy quarks (charm and beauty) have masses much larger than the characteristic energy scale of QCD interaction. Due to this they are typically produced in hard scattering processes with large Q^2 and thus offer a unique perspective to study the transition from quark to hadrons in all collision systems. Recent production measurements of charm baryons and mesons in small system at midrapidity show a charm baryon-to-meson ratio significantly higher than those measured in $e+e-$ collisions, which suggests that the fragmentation of charm is not universal across different collision systems. Thus, precise measurements of charm baryon and meson production are crucial to study the charm quark hadronization in a partonic rich environment like the one produced in pp collisions at the LHC energies.

In p-Pb collisions, a modification of the hadronization mechanisms could be present due to cold nuclear matter effects and possible collective phenomena. A systematic comparison between data and models will help to understand charm quark hadronization in pp and p-Pb collisions. In this contribution, the most recent measurements with the ALICE experiment of charm baryon production in pp collisions and p-Pb will be shown. Also the comparison with model calculations including several modeling for the charm hadronization in the small collision system will be discussed.

Session

Heavy Ions and QCD

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