

Charm production and hadronization in pp and p–Pb collisions at the LHC with ALICE

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Studies of open-charm hadron production in a partonic rich environment are performed at the LHC to investigate charm-quark hadronization mechanisms. Recent measurements of different charm meson (D^0 , D^+ , D_s^+ , D^{*+}) and baryon (Λ_c^+ , $\Xi_c^{0,+}$, $\Sigma_c^{0,++}$, Ω_c^0) production in pp collisions at $\sqrt{s} = 5.02$ TeV and $\sqrt{s} = 13$ TeV allowed the measurement of the fragmentation fractions and the charm cross section with unprecedented precision. The measurements show that the fragmentation fractions significantly differ from the ones observed in e^+e^- collisions. This contradicts the typical picture of universality of the fragmentation functions across the different collision systems.

Furthermore, the baryon to meson ratios Λ_c^+/D^0 , measured down to $p_T = 0$, and $\Xi_c^{0,+}/D^0$ in p–Pb collisions will be discussed. In p–Pb collisions a modification of the hadronization mechanisms could be present due to cold nuclear matter effects and possible collective phenomena. Several models are able to reproduce the measured baryon to meson ratios. A systematic comparison between data and models will help to understand charm quark hadronization in pp and p–Pb collisions.

Submitted on behalf of a Collaboration?

Yes

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