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Investigation of charm-quark hadronisation in proton–proton collisions with ALICE

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Measurements of charm-strange meson and charm-baryon production in pp and heavy-ion collisions at the LHC are fundamental to investigate the charm-quark hadronisation across collision systems.

In this contribution, the final results of the ALICE Collaboration on the production of strange (D_s^+, $\Xi_c^{0,+}$, Ω_c^0) and non-strange (D^0, D^+, D^{*+}, Λ_c^+, $\Sigma_c^{0,+,++}$) charm hadrons in pp, p–Pb and Pb–Pb collisions collected in Run 2 by the ALICE experiment are shown.
The production measurements of D_s^+ mesons are compared to those of non-strange mesons, and the comparison between the measured baryon-to-meson ratios with novel theoretical calculations will be discussed. To conclude, the first studies of charm-hadron reconstruction using the large data sample of pp collisions at $\sqrt{s}$ = 13.6 TeV harvested from the start of LHC Run 3 are presented.

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