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Measurements Λ_c^+ production cross section as a function of multiplicity and charm fragmentation fractions in pp and p-Pb collisions with ALICE

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The production cross sections of open heavy-flavour hadrons in pp and p-Pb collisions are typically described within the factorisation approach as the convolution of the parton distribution functions of the incoming protons, the perturbative QCD partonic cross section, and the fragmentation functions. The latter are typically parametrised from measurements in e^+e^- collisions, assuming universality across different collision systems. Measurements of charm baryon and meson production in pp and p-Pb collisions, and measurements of their yield production as a function of multiplicity, help to investigate hadronization processes and to study how these processes are modified across systems, from pp to Pb-Pb and from low to high multiplicities.

In this poster, the latest measurements of Λ_c^+ down to $p_T = 0$, performed with the ALICE detector at mid-rapidity in pp and p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV, are presented. This is the first ALICE measurement, down to $p_T = 0$, of the Λ_c^+/D^0 ratio in pp and p-Pb collisions. This result, together with the already published measurement of the cross section for the D^0 , D^+ , D_s^+ and Λ_c^0 production, allows an evaluation of the total section and fragmentation fractions. The result unambiguously shows that the charm fragmentation is not universal across leptonic and hadronic collision systems. The Λ_c^+/D^0 yield ratios as measured as a function of charged particle multiplicity in pp and p-Pb collisions is also shown and compared to different hadronization models.

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