Beitrag ID: **55** Typ: **Poster**

Measurement of Ξ_c^0 via the semileptonic decay channel in pp collisions and in p–Pb collisions with ALICE

Dienstag, 28. März 2023 18:15 (2 Stunden)

Recent results of charmed baryon production in pp collisions showed a significant enhancement of the baryon-to-meson ratio compared with the expectation based on e^+e^- collisions. This indicates that the charm fragmentation into hadrons is not an universal process among different collision systems, and different mechanisms may play a role in the hadronic collisions with respect to e^+e^- collisions. Therefore, the measurements of charmed baryon production are crucial to investigate the hadronisation mechanism of charm quarks. The production yield measurement of the Ξ_c^0 baryon has been measured in pp collisions at $\sqrt{s} = 5$ and 13 TeV. Further studies of the multiplicity dependence of the baryon-to-meson yield ratios can provide more information on how the charm hadronisation processes evolve from small to large collision systems. Measurements in p-Pb collisions are important to separate the cold nuclear matter effects from the effects associated with the formation of quark-gluon plasma. In this contribution, the most recent measurements of the Ξ_c^0 production via the semileptonic decay channel $\Xi_c^0 \rightarrow \Xi^- e^+ \nu_e$ in pp collisions and the analysis status for the study of multiplicity dependence in pp and p-Pb collisions will be shown.

Experiment/Theory

ALICE

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Sitzung Einordnung: Poster Session

Track Klassifizierung: Heavy flavor and quarkonia