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D0-meson production in p-Pb collisions measured with ALICE at the LHC

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The heavy-flavour production in proton–nucleus collisions is sensitive to Cold Nuclear Matter effects (CNM), related to the presence of nuclei in the colliding system such as the modification of the parton distribution functions of nuclei (e.g. shadowing or saturation effects), and parton energy loss in cold nuclear matter. These effects can induce a modification of the heavy-flavour production at low momentum and their measurement is required to understand final-state effects in Pb–Pb collisions related to the presence of the Quark-Gluon Plasma.

The study of heavy-flavour production as a function of multiplicity of charged particles produced in the collision provides information on the dependence of CNM effects on the collision geometry and on the density of final-state particles. In addition, the study of heavy-flavour transverse-momentum modification in high-multiplicity p-Pb collisions could give insight into the possible presence of collective effects.

In this contribution the ALICE measurements of open heavy-flavour production via the reconstruction of D^0 -meson hadronic decay are presented, focusing on recent results in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV collected during LHC Run2. In particular, the production cross sections and the nuclear modification factors down to $p_T = 0$ will be shown. The D^0 nuclear modification factor Q_{pPb} , measured as a function of the centrality of the collision and the central-to-peripheral ratio, Q_{cp} , will be presented as well.

The results will be compared with theoretical model predictions.

Content type

Experiment

Collaboration

ALICE

Centralised submission by Collaboration

Presenter name already specified

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