

D-meson production in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV with the ALICE detector

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Open heavy-flavour hadrons are a powerful tool to investigate the properties of the medium created in high-energy nuclear collisions. The relatively large masses of heavy quarks, charm and beauty, ensure that they are predominantly produced in hard scattering processes during the early stages of the collision and experience the whole evolution of the system. The measurements of D-meson production in p-Pb collisions are necessary to characterize the initial-state effects due to the presence of a nucleus, such as the modification of parton distribution functions in the nucleus, leading in particular to gluon saturation (shadowing) at low Bjorken- x , transverse momentum broadening due to parton scatterings in the nucleus and partonic energy loss in cold nuclear matter. The measurements of heavy-flavour production as a function of charged-particle multiplicity are sensitive to the interplay between hard and soft mechanisms of particle production, and could provide insight into the role of multi-parton interactions and multiple binary nucleon-nucleon collisions.

In this talk, we will focus on the measurements of D-meson production in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV. D mesons (D^0 , D^+ , D^{*+} , and D^{+s}) are reconstructed via their hadronic decay channels in the central rapidity region with the ALICE detector. The D-meson p_T and y -differential production cross sections in p-Pb collisions will be shown. The nuclear modification factor, R_{pPb} , for minimum bias p-Pb collisions will be shown and compared with theoretical predictions. The D-meson transverse momentum distributions in p-Pb collisions relative to pp collisions (Q_{pPb}), measured in several multiplicity classes, will be presented. The D-meson yields per event, measured in different multiplicity intervals and normalized to their multiplicity-integrated values, will also be discussed.

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