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Centrality dependence study of nuclear modification factor of electrons from heavy-flavour hadron decay in p-Pb collisions with ALICE at the LHC

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The goal of relativistic heavy ion collider experiments is to explore the properties of the strongly interacting matter produced with very high temperature and energy density, conditions under which the formation of a Quark-Gluon Plasma (QGP) is expected. Heavy quarks, i.e. charm and beauty are sensitive probes of the QGP as they are produced in the initial stages of the collision and witness the entire evolution of the system. Measurements in p-Pb collisions help understanding Cold Nuclear Matter (CNM) effects such as the modification of the nuclear Parton Distribution Function (nPDF) with respect to the expectation from proton PDF, parton momentum (k_T) broadening from soft scattering processes and parton energy loss in nuclear matter. Studies of heavy-flavour production in different centrality intervals can provide information on the dependence of CNM effects on the collision geometry and on the density of final-state particles. In addition, these allow us to study the interplay between the hard and soft processes in heavy-flavour production. In this contribution, we will present the p_T -differential cross-section of heavy-flavour decay electrons for different centrality intervals in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV at mid-rapidity ($|\eta| < 0.8$). The Time Projection Chamber (TPC) was used to identify the electrons in $2 < p_T < 8$ GeV/c and the Electromagnetic Calorimeter (EMCal) was used to extend the p_T range up to 16 GeV/c. The nuclear modification factor, Q_{pPb} , ratio of transverse momentum spectra in p-Pb collisions and the corresponding cross section in pp collisions scaled by the nuclear overlap function, and the central-to-peripheral ratio Q_{cp} , ratio of transverse momentum spectra measured at central collisions to that from peripheral collisions, scaled by the corresponding nuclear overlap functions, will be presented for different centrality intervals of p-Pb events.

Content type

Experiment

Collaboration

ALICE

Centralised submission by Collaboration

Presenter name already specified

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