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Multiplicity dependence of azimuthal correlations of D mesons with charged particles in p-Pb collisions with ALICE

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Ultra-relativistic heavy-ion collisions allow the investigation of the Quark-Gluon Plasma (QGP), a colour-deconfined state of strongly-interacting matter produced in such collisions. Heavy quarks (charm and beauty) are important probes to understand the properties of this QCD medium, since they are produced in the early stages of the collisions and thus experience the whole evolution of the QGP.

The analysis of angular correlations between heavy-flavour particles and charged particles in pp collisions allows us to characterize the heavy-quark parton shower and gives us sensitivity to their production mechanisms. Differences between the measurements in pp and p-Pb collisions can give insight on how cold nuclear matter effects affect the heavy-quark production and the fragmentation into heavy-flavour jets. This is important for the interpretation of possible medium-induced modifications to the correlation pattern in Pb-Pb collisions. In the analysis of hadron-hadron correlations in high multiplicity p-Pb collisions, a double-ridge long-range structure has been observed, possibly coming from either a collective behavior of the system, or gluon saturation in the initial state. This feature can be investigated for heavy quarks as well through heavy-flavour correlation studies.

In this contribution, we will present ALICE measurements of azimuthal correlations between prompt D mesons and charged hadrons in p-Pb collisions at $\sqrt{s_{\mathrm{NN}}}$ = 5.02 TeV. A particular focus will be given on the ongoing studies to address possible modifications of the jet-induced correlation peaks at different event multiplicities.

Content type

Experiment

Collaboration

ALICE

Centralised submission by Collaboration

Presenter name already specified

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