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Measurement of D meson—charged particle azimuthal angular correlations in p–Pb collisions at $\sqrt{s_{\text{NN}}} = 5.02$ TeV with ALICE

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A Large Ion Collider Experiment (ALICE) is a general purpose heavy-ion experiment with the main goal of exploring the characteristics of the medium formed in high-energy nuclear collisions, composed of deconfined and strongly-interacting quarks and gluons (Quark-Gluon Plasma, QGP). Heavy quarks (charm and beauty) are produced in the initial hard scatterings and interact with the medium constituents throughout its whole evolution. Therefore, they serve as sensitive probes to study the properties of the medium.

The study of the angular correlation between D mesons and charged particles can provide relevant information on the processes by which heavy quarks lose energy in the QGP and help to spot possible modifications of the charm parton shower and hadronisation induced by the presence of the medium. The measurement of this observable in pp collisions, besides furnishing the necessary reference for future Pb–Pb studies, is interesting to study the fragmentation of charm quarks as well as their production mechanism providing a testing ground for perturbative QCD calculations. Data from p–Pb collisions are important to constrain possible modifications of the angular correlation pattern that could be induced by cold nuclear matter effects in the initial and final state of the nuclear collision.

In this contribution, we present the results of the measurement of azimuthal correlations between D mesons and charged particles using the data collected with ALICE in p–Pb collisions at $\sqrt{s_{\text{NN}}} = 5.02$ TeV. They are compared to the results obtained in pp collisions at $\sqrt{s} = 7$ TeV. D mesons were reconstructed from their hadronic decays at central rapidity ($|y| < 0.5$) in the transverse momentum range $3 < p_{\text{T}}(\text{D}) < 16$ GeV/c and were correlated with charged hadrons reconstructed in the pseudorapidity range $|\eta| < 0.8$.

On behalf of collaboration:

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