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D^0 measurements in pp and Pb–Pb collisions at $\sqrt{s_{\mathrm{NN}}}$=5.02~TeV with ALICE at the LHC

Heavy quarks (charm and beauty) are effective probes of the QCD matter formed in high-energy nuclear collisions. They are produced in hard partonic scattering processes occurring in the initial stage of the collisions, propagate through the medium and interact with its constituents. Therefore, they probe the entire evolution of the system.

The study of their production in pp collisions provides a test of perturbative QCD (pQCD) calculations at the LHC energies. Moreover, these measurements constitute a reference for the study of nuclear matter effects on heavy quarks in Pb–Pb collisions, where a Quark-Gluon Plasma (QGP) is produced.

In this contribution we present the D-meson
production cross sections measured with ALICE at the LHC, via the reconstruction of the $\mathrm{D}^0 \rightarrow \mathrm{K}^-\pi^+$ in pp collisions at $\sqrt{s}$ = 5.02~TeV. The p_{T}-differential cross sections will be compared with previous measurements at $\sqrt{s}$ = 2.76, 7 and 8~TeV and with pQCD calculations.
The status of the analysis in Pb–Pb collisions at $\sqrt{s_{\mathrm{NN}}}$ = 5.02~TeV will be discussed.

Preferred Track

Open Heavy Flavors

Collaboration

ALICE

Primary author: TERREVOLI, Cristina (Universita e INFN, Padova (IT))

Presenter: TERREVOLI, Cristina (Universita e INFN, Padova (IT))

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