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D^0-meson production and elliptic flow measurements in Pb–Pb collisions at $\sqrt{s_{\mathrm{NN}}}$ = 5.02 TeV with ALICE

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Heavy quarks (charm and beauty) are produced on a short time scale compared to the formation time of the Quark-Gluon Plasma (QGP) which is formed in heavy-ion collisions at ultra-relativistic energy. They propagate through and interact with the medium. Thus, they are powerful probes to study the properties of the QGP. The measurements of the nuclear modification factor and azimuthal anisotropy of D mesons allow us to investigate the parton energy loss mechanisms in the QGP and the transport properties of the medium.

In ALICE, D mesons are reconstructed in Pb-Pb collisions at central rapidity via their hadronic decay channels. The measurements of the D^0 nuclear modification factor and azimuthal anisotropy in Pb–Pb collisions at $\sqrt{s_{\mathrm{NN}}}$ = 5.02 TeV in the centrality class 30-50\% will be presented and compared to the theoretical predictions.

Summary

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