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D^{+}-meson nuclear modification factor in Pb–Pb collisions with ALICE

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Heavy quarks (charm and beauty) can be used to study the properties of the strongly-interacting matter that is created in central Pb–Pb collisions at ultrarelativistic energies. They are produced in parton scattering processes with high-momentum transfer in the initial stages of the collisions. Therefore, the heavy quarks experience all the phases of the system evolution losing energy in the medium via gluon radiation and elastic collisions. The measurement of the D-meson nuclear modification factor (R_{AA}) is sensitive to the in-medium energy loss of charm quarks.

The D-meson production has been studied by ALICE in pp, p–Pb and Pb–Pb collisions. In particular, the measurement of the D^{+}-meson nuclear modification factor in Pb–Pb collisions at $\sqrt{s_{\mathrm{NN}}} = 2.76$ TeV, collected in 2011, will be presented. The dependence of the D^{+}-meson R_{AA} on its transverse momentum and on the centrality of the collisions will be reported.

On behalf of collaboration:

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