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Heavy-flavour jet production and correlations with ALICE

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Heavy quarks (charm and beauty) are ideal probes to investigate the properties of the Quark-Gluon Plasma (QGP) produced in ultra-relativistic heavy-ion collisions, being produced in hard-parton scatterings in the collision early stages and experiencing the whole QGP evolution.
Measurements of heavy-flavour jets give a direct access to the initial parton kinematics and can provide constraints to heavy-quark energy-loss models, in particular adding information on how the radiated energy is dissipated in the medium.
Studies of angular correlations between heavy-flavour particles and charged particles allow us to characterize the heavy-quark fragmentation process and its possible modification in a hot nuclear matter environment.

Measurements in pp collisions provide the necessary reference for the interpretation of heavy-ion collision results, allowing us to characterise the heavy-quark production and fragmentation in vacuum.
Studies in p–Pb collisions give insight on how the heavy-quark production and hadronisation into jets are affected by the cold nuclear matter effects.

This contribution will focus on the latest studies of heavy-flavour jets and D-meson correlations with charged particles with the ALICE detector.
Measurements of azimuthal D meson-charged particle correlations, jets tagged with D mesons and jet-momentum fraction carried by the D meson will be presented in pp collisions at $\sqrt{s} = 5.02$, 7 and 13 TeV and compared with expectations from various Monte Carlo event generators.
Production of heavy-flavour jets in pp collisions at $\sqrt{s} = 5.02$ TeV will be also addressed with studies of charged jets tagged by heavy-flavour hadron decay electrons and beauty secondary vertices.
The nuclear modification factor in p–Pb collisions at $\sqrt{s_{\rm NN}} = 5.02$ TeV of the aforementioned heavy-flavour tagged jets will be also presented and complemented with measurement of the D-tagged jet nuclear modification factor in Pb–Pb collisions at $\sqrt{s_{\rm NN}} = 5.02$ TeV.

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