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Type: **Oral**

Probe parton propagation in heavy-ion collisions with ALICE heavy-flavour measurements (remote)

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Heavy quarks (charm and beauty) are valuable probes for investigating the properties of the quark-gluon plasma (QGP) formed in ultra-relativistic heavy-ion collisions, as they are mainly produced through hard-scattering processes prior to the formation of the QGP, and their number is conserved during the subsequent QGP evolution. Measurements of the nuclear modification factor R_{AA} of charm and beauty hadrons allow the characterisation of the in-medium energy loss of heavy quarks while traversing the QGP. Information on their diffusion and degree of participation in the medium collective motion can be obtained by measuring the elliptic-flow coefficient v_2 of heavy-flavour particles. Complementary insights into heavy-quark fragmentation and energy redistribution can be obtained by measuring angular correlations involving heavy-flavour particles.

In this contribution, the newly published results on the non-prompt v_2 coefficient of D^0 mesons in Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV will be shown and compared to measurements of prompt D-meson v_2 in the same system. These will be supplemented by recent results of the v_2 of heavy-flavour decay muons in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV, providing new insights into possible collective effects in smaller systems. The recent final results of the heavy-flavour decay electron R_{AA} in Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV will also be reported, together with measurements of prompt and non-prompt D mesons and Λ_c^+ baryons. New Pb-Pb results of angular correlations of heavy-flavour decay electrons with charged particles in the same collision system will also be discussed. In view of a better understanding of the in-medium heavy-quark dynamics, the reported ALICE measurements will be compared to predictions from models including different implementations of heavy-quark interaction and hadronisation with the QGP constituents.

Category

Experiment

Collaboration (if applicable)

ALICE

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