ID de Contribution: **100** Type: **Talk**

Study of charm and beauty production in hadronic collisions via muon measurements at forward rapidity with ALICE

mercredi 5 juin 2024 11:00 (20 minutes)

Measurements of the production of open heavy-flavour hadrons and their semileptonic decays in high-energy heavy-ion collisions give unique access to the transport properties of heavy quarks (charm and beauty) in the quark-gluon plasma (QGP). This includes their mass-dependent in-medium energy loss, their degree of thermalisation and their in-medium hadronisation mechanisms. Charm and beauty measurements in small collision systems, pp and p–Pb, serve as important test of perturbative QCD calculations. They also provide the possibility to investigate cold nuclear matter effects in the nuclear medium and represent the baseline to study the QGP and quantify hot-medium effects in heavy-ion collisions. Measurements in these collision systems gained additional interest due to the possibility of observing, in high-multiplicity collisions, final-state effects typically attributed to the presence of the QGP in Pb–Pb collisions. The origin of these effects is still under active investigation.

Open heavy flavours are also studied with ALICE through the semimuonic decays of charm and beauty hadrons. In this contribution, recent results of the azimuthal anisotropy of open heavy-flavour hadron decay muons in high-multiplicity p–Pb collisions at forward ($2.03 < y_{\rm CMS} < 3.53$) and backward ($-4.46 < y_{\rm CMS} < -2.96$) rapidities are discussed and compared with other experimental measurements, as well as with model calculations. The results provide new insights into the collective-like behaviour observed in small collision systems and impose stringent constraints on models.

In addition, in the LHC Run 3, the new Muon Forward Tracker (MFT) adds vertex capabilities to the forward muon spectrometer, providing a unique way to discriminate muons from charm- and beauty-hadron decays. A first look at the measurement of muons from charm- and beauty-hadron decays, separately, in pp collisions at $\sqrt{s}$ = 13.6 TeV and Pb–Pb collisions at $\sqrt{s_{\rm NN}}$ = 5.36 TeV collected with the upgraded ALICE apparatus is reported.

Auteur principal: ZHANG, Maolin

Co-auteur: ALICE, Collaboration

Orateur: ZHANG, Maolin

Classification de Session: Track2-HF&Q

Classification de thématique: Heavy-Flavours & Quarkonia