



Contribution ID: 54

Type: Plenary Talk

Recent ALICE results on open heavy-flavour and quarkonium production

Friday, 7 December 2018 10:30 (45 minutes)

Recent ALICE results on open heavy-flavour and quarkonia production
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The ALICE experiment is designed to study the hot and dense medium, the Quark-Gluon Plasma (QGP), produced in ultra-relativistic heavy-ion collisions at the LHC.

Due to their large masses, heavy quarks (charm and beauty) are produced in the early stages of the heavy-ion collisions, through hard-parton scatterings, and their abundances are preserved throughout the subsequent evolution of the medium. Therefore they represent ideal probes for characterising the QGP and for studying its transport properties.

In particular, the measurement of the production of open heavy-flavour hadrons in nucleus-nucleus collisions can give insight in the mechanisms of in-medium energy loss, propagation and hadronisation of heavy quarks. The sequential suppression of the quarkonium states by colour screening was initially proposed as a signature of QGP formation. However, results on charmonium suppression in Pb-Pb collisions at the LHC seem to indicate that additional mechanisms, such as the (re)combination of charm and anti-charm quarks, play a role, leading to a more complex picture of the quarkonium melting in the QGP.

The ALICE experiment is well suited for measuring of both open heavy-flavour hadrons and quarkonia at mid and forward rapidities, exploiting several different experimental techniques.

This talk will present a review of the ALICE results on open heavy-flavour and quarkonium production with a particular focus on the studies in Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV.

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Session Classification: Session 10