



Contribution ID: 105

Type: Poster

Low-mass Dielectrons in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV with ALICE

Tuesday 15 May 2018 19:10 (30 minutes)

A very promising probe to study the quark-gluon plasma, a deconfined state of quarks and gluons predicted by lattice quantum chromodynamics calculations in ultra-relativistic heavy-ion collisions, are correlated dielectron pairs.

Electrons reach the detector without significant final state interactions. In addition, the low-mass dielectron spectrum comes from various sources, i.e. Dalitz and resonance decays of pseudoscalar and vector mesons, semi-leptonic decays of charm and beauty hadrons, as well dielectrons from the thermalised system, which are produced at all stages of the collision. Therefore, they can be used to study the space-time evolution of the system.

While pp collisions provide an important baseline measurement in vacuum for heavy-ion studies, p-Pb collisions can be used to disentangle cold from hot nuclear matter effects. Moreover, recent studies in small colliding systems (pp and p-Pb) showed intriguing collective behaviours similar to observations previously done in heavy-ion collisions. They require further investigations in particular as a function of the event charged-particle multiplicity. Searching for the thermal signatures through dielectrons is also important in small systems to disentangle the initial state effects and final state effects.

In this poster the latest status of the dielectron analysis with ALICE in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV will be presented. Data recorded in 2016 are used. Furthermore, it will be discussed how a multivariate approach can be useful in the measurements of low-mass dielectrons.

Content type

Experiment

Collaboration

ALICE

Centralised submission by Collaboration

Presenter name already specified

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Session Classification: Poster Session

Track Classification: Electromagnetic and weak probes