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Low-Mass Dielectron Measurements in pp, p-Pb and Pb-Pb Collisions with ALICE

Wednesday, 30 September 2015 11:30 (20 minutes)

The measurement of electron-positron pairs (dielectrons) in the low invariant mass region allows to study the vacuum and in-medium properties of light vector mesons. Additionally, dielectrons from semileptonic decays of correlated heavy quark mesons carry information on the heavy-flavour production in the different collision systems. To quantify modifications of the dielectron production in heavy-ion collisions, measurements in pp collisions serve as a reference, while the analysis of p-A collisions allows disentangling cold from hot nuclear matter effects.

In the ALICE apparatus at the LHC, electrons at mid-rapidity are identified by their specific energy loss in the Inner Tracking System (ITS) and Time Projection Chamber (TPC), combined with time-of-flight information from TOF.

The dielectron invariant mass distributions will be compared to those from the expected hadronic sources in pp collisions at $\sqrt{s} = 7$ TeV and in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV. From these ones and from pair transverse momentum distributions, we discuss constraints on the heavy-flavour contributions. The status of the analysis of Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV will also be presented. Also future prospects of low-mass dielectron measurements with an upgraded ALICE detector after the second LHC long shutdown in 2018 will be discussed.

On behalf of collaboration:

ALICE

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