



Contribution ID: 428

Type: Poster

Dielectron production in pp collisions at $\sqrt{s}=13$ TeV measured in a dedicated low magnetic-field setting with ALICE

Tuesday 15 May 2018 19:10 (30 minutes)

Low-mass dielectrons are an important probe for the hot and dense medium which is created in ultra-relativistic heavy-ion collisions. Since leptons do not interact strongly and are produced throughout the whole collision process, they carry information from all collision stages with negligible final-state interaction.

The ALICE detector is well-suited to perform this measurement due to its excellent tracking and particle identification capabilities at low momenta. However, Dalitz decays and photon conversions lead to a high combinatorial background with a signal-to-background ratio of 1:10 to 1:1000 in Pb-Pb collisions, depending on the invariant mass. Therefore, the minimization of the background is a key aspect of this analysis.

The reconstruction efficiency of low- p_T electrons can be increased by reducing the magnetic field of the ALICE central barrel solenoid from 0.5 T to 0.2 T. This allows a better rejection of the electron background and simultaneously gives the opportunity to increase the accessible phase space of the dielectron measurement. Such a configuration is planned in ALICE for part of the Pb-Pb campaigns in LHC Run 3 and 4 from 2021 on.

This poster will present the status of the dielectron measurement in pp collisions at $\sqrt{s} = 13$ TeV from pilot runs taken with $B=0.2$ T in the ALICE central barrel. It will be shown how the analysis was adapted to the reduced-field configuration. The results will be compared to reference data recorded with the nominal field, to illustrate the benefits of the low magnetic field setting. Finally, the invariant-mass and pair-transverse-momentum distributions will be compared to the expected yield from known hadronic sources.

Content type

Experiment

Collaboration

ALICE

Centralised submission by Collaboration

Presenter name already specified

Author: JUNG, Jerome (Johann-Wolfgang-Goethe Univ. (DE))

Presenter: JUNG, Jerome (Johann-Wolfgang-Goethe Univ. (DE))

Session Classification: Poster Session

Track Classification: Electromagnetic and weak probes