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Dielectron production in pp collisions at $\sqrt{s}=7$ TeV with ALICE

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Dileptons are a prime probe of the deconfined state of strongly-interacting matter, the Quark-Gluon Plasma (QGP), produced in high-energy heavy-ion collisions, as they are not affected by final-state interactions and produced at all stages of the collision. A measurement of the thermal radiation from the QGP in the dielectron intermediate-mass region gives information on the medium temperature. In this region the main component of the dielectron continuum is coming from correlated semi-leptonic decays of charm and beauty hadrons, which may be affected by the energy loss and collectivity of charm and beauty quarks in the QGP. Therefore, it is crucial to understand the primordial heavy-flavour production in vacuum and find a way to separate this contribution from the thermal signal of the QGP. This can be studied in proton-proton collisions.

In this poster, the measurement of correlated e^+e^- pairs in pp collisions at $\sqrt{s} = 7$ TeV with ALICE will be presented. In particular, we will show how the measured distance of closest approach (DCA) of the electrons to the primary vertex of the collision gives the possibility to separate prompt and non-prompt dielectron pairs. The results will be compared with the expectations from known hadronic sources as a function of m_{ee} , $p_{T,ee}$ and DCA_{ee} . The extraction of the charm and beauty cross sections from a fit of the data with different Monte-Carlo generators will be discussed, as well as the measured fraction of direct photons to inclusive photons.

Content type

Experiment

Collaboration

ALICE

Centralised submission by Collaboration

Presenter name already specified

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