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Dielectron analysis in p+p collisions at 1.58 GeV beam energy with HADES

In this contribution we present preliminary results on the dielectron production in p+p interactions at 1.58 GeV beam energy measured with the High Acceptance DiElectron Spectrometer (HADES). The HADES RICH detector has been upgraded with a new photon detection camera which strongly enhances the electron efficiency and conversion pair rejection. With this upgrade, a signal-to-background ratio above 1 is achieved over the entire dielectron spectrum. For this work, 0.5 billion collisions have been analyzed.

Furthermore, by analyzing elastic p+p collisions, a normalization procedure for differential cross sections has been established. Additionally, collisions with an empty target and thereby the target vessel provide a p+Mylar spectrum and allow the extraction of a p+n spectrum.

The p+p and p+n dielectron spectra can serve as a reference for the understanding and interpretation of Ag+Ag collisions which have been measured in HADES at the same energy. A precise understanding of the dielectron production in elementary reactions is needed to disentangle the various contributions to the measured dielectron yield in Ag+Ag collisions. This NN baseline enables the determination of the medium temperature and the excess ratio.

Category

Experiment

Collaboration (if applicable)

HADES

Author: SCHARMANN, Karina (Justus-Liebig-Universität Gießen)

Presenter: SCHARMANN, Karina (Justus-Liebig-Universität Gießen)

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