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Reconstruction of neutral mesons via photon conversion method in Ag-Ag collisions at 1.58A GeV with HADES

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The physics program of the HADES (High Acceptance DiElectron Spectrometer) experiment is focused on investigating properties of strongly interacting matter at moderate temperatures and large baryo-chemical potential. One of the important observables is the study of virtual photons and their decays into electron pairs (e^-+e^+) in hadron and heavy-ion collisions. As leptons are not affected by final-state interactions, the electrons and positrons offer the possibility to look into the dense nuclear medium in the first stage of collisions. The major background in the dilepton spectrum at the low invariant masses region are Dalitz-decays of light neutral mesons, so that precise knowledge about neutral meson production is mandatory for the dilepton analyses. In HADES, these mesons can be reconstructed via their dominant γ,γ decays utilizing double photon detection in the electromagnetic calorimeter (ECAL) or via double external pair conversion $\gamma_{\text{material}} \rightarrow e^++e^-$ in target or detector material with subsequent electron/positron identification. In this contribution, main emphasis will be put on most recent results from π^0 and η -reconstruction via conversion method in Ag+Ag collisions at 1.58A GeV.

Presenter: POVAR, Tetiana (Bergische Universität Wuppertal)