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Reconstruction of $\gamma\gamma$ mass spectra in AgAg collisions at 1.23 and 1.58 AGeV beam energies with ECal detector of the HADES experiment

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HADES is a large acceptance di-electron spectrometer operating at SIS18, GSI, Germany to study hadron-proton, hadron-nucleus and nucleus-nucleus collisions at 1-2 AGeV beam energies. The new electromagnetic calorimeter (ECAL) was used for the first time at the HADES setup in 2019 for the study of Ag+Ag reaction at 1.23 AGeV and 1.58 AGeV beam energies. The talk is devoted to methods of the π^0 mass spectra reconstruction from these data. The analysis includes several steps: 1) calibration of each module of the ECal detector, 2) identification of γ -quants, 3) reconstruction of γ - γ invariant mass spectra, 4) subtraction of combinatorial background and 5) efficiency correction. The obtained results show experimental capabilities of the new detector and allow to normalize yields of other particles.

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