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Dilepton reconstruction in Au+Au collisions at 1.23A GeV with HADES

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Virtual photon decays to lepton pairs are considered as an ideal probe to access information of all stages of heavy-ion collisions. However, this probe is very rare and is surrounded by a high track density environment produced in heavy-ion collisions. This complicates the track reconstruction and makes identification of lepton pairs challenging.
Events of Au+Au collisions at a beam energy of 1.23A GeV were recorded with the HADES experiment in 2012. The first measurement of electron pairs in Au+Au complete the systematics of virtual photon production in NN/pA/AA collisions in the SIS18 energy range.

In case of lepton identification a Ring Imaging Cherenkov detector is essential. Its main purpose is the separation of electrons and positrons from large background of charged hadrons produced in heavy-ion collisions. In order to further improve the purity and efficiency of an electron sample, a new backtracking algorithm using information provided by tracking detectors could be applied. This new approach offers gains in efficiency for leptons and especially for detection of partially reconstructed pairs with small opening angle. In this contribution the strategy of the backtracking approach is presented. The new identification procedure is applied for lepton identification in Au+Au collisions at 1.23A GeV. The reconstructed dilepton spectra will be discussed.

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