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Low-mass, low-momentum virtual photon measurements with HADES at SIS18

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Collisions of heavy nuclei at relativistic energies generate a hot and dense medium, whose microscopic properties can be studied with electromagnetic probes.
Dileptons serve as a unique tool because they do not interact strongly with the surrounding matter and carry undisturbed information about the QCD matter produced in the reaction.
By examining low-mass and low-momentum dileptons, we can gain insights into transport properties and even new phases of QCD matter, such as the color superconductive phase.

In this contribution, we discuss the essential steps towards investigating soft dileptons in the low-mass, low-momentum phase-space.

To achieve this, data from Ag+Ag collisions at 1.23 AGeV with a nominal magnetic field intensity were analyzed as a reference and compared with a special run conducted with a reduced magnetic field (5% of B_{max}) to increase the acceptance of low-momentum pairs.

Additionally, we will present predictions from simulations regarding the phase-space coverage at reduced magnetic field intensity and provide a preview of the upcoming low-magnetic field run with Au+Au collisions at 0.8 AGeV with the HADES experiment.

Category

Experiment

Collaboration

HADES

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