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Direct photon-photon HBT correlations in Ag+Ag collisions at $\sqrt{s_{NN}} = 2.55$ GeV

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The study of femtoscopic correlations of photon pairs, emitted from heavy-ion collisions, can serve as an unique probe of the evolution of the source in space and time. Unlike commonly used charged particles photons are not subject to strong, nor electromagnetic interactions. These properties imply no distortion of the information carried by from the point of their creation up to the detection in experiment. As a consequence it is plausible to investigate source features, which are not only based on the information available after thermal freeze-out, but also include previous stages of expansion. Moreover, results obtained this way are not burdened with distortions caused by surrounding particles. Unfortunately direct photon detection is not trivial and the photon yield is mainly dominated by 0 meson decays, making a direct photon analysis suffering from the need to separate them from a background of photons emitted at different (later) stages of collision. We present first preliminary results from such an analysis of Ag+Ag collisions at $\sqrt{s_{NN}} = 2.55$ GeV, measured with HADES at the GSI-SIS18.

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