

XVIII Polish Workshop on Relativistic Heavy-Ion Collisions: Strange and Heavy Flavour Physics



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Photon-photon femtoscopy in Ag+Ag collisions at $\sqrt{s_{NN}} = 2.55$ GeV

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Exploring correlations between photon pairs is a challenging frontier in the field of femtoscopic measurements. Unlike hadrons, direct photons escape the hot and dense medium without final-state interactions, carrying pristine information from the earliest moments of the collision. Therefore, they offer a unique possibility to probe the initial space-time dynamics of the system. Additionally, due to the nature of photon correlations, it can be used to estimate the average number of direct photons in high-multiplicity events at the low p_T region.

The HADES experiment, part of the FAIR/GSI facility, specialises in dielectron (e^\pm) measurements in collisions at beam energies of 1–2 A GeV, allowing for the detection of photons via the conversion method. The experiment's electromagnetic calorimeter extends its capabilities to real photon detection, paving the way for photon-photon femtoscopy within this energy regime.

Preliminary results for Ag+Ag collision data at $\sqrt{s_{NN}} = 2.55$ GeV will be presented.

Primary author: GRUNWALD, Mateusz (Warsaw University of Technology)

Presenter: GRUNWALD, Mateusz (Warsaw University of Technology)

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