

Title: Neutral Meson Production in Ag+Ag Collisions at 1.58 A GeV with HADES Electromagnetic Calorimeter

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Abstract: The Dielectron Spectrometer HADES operating at the SIS18 synchrotron, FAIR/GSI Darmstadt, recently provided new intriguing results on the production of electron pairs and strangeness from nucleus-nucleus collisions, as well as from elementary reactions, in the energy region of 1 – 2 A GeV. In 2019 the spectrometer was complemented by an electromagnetic calorimeter based on lead-glass modules, which allows us to measure photons and thus study the production of π^0 and η mesons via their two-photon decay. Knowledge of the neutral-meson production is a mandatory prerequisite for the interpretation of dielectron data. In particular, the directed and elliptic flow of neutral mesons with respect to transverse momentum and rapidity will be shown for different centrality classes in Ag + Ag collisions at 1.58 A GeV. The results of the analysis corresponding to the 14×10^9 events will be confronted with the results of other experiments and with the current model calculations.

Keywords: baryonic medium, hadrons, relativistic heavy-ion collisions, neutral mesons, pion flow