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Production of Charged Kaons and $\phi(1020)$ in Ag+Ag Collisions at $\sqrt{s_{NN}} = 2.55$ GeV

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Heavy-ion collisions in the few GeV energy regimes probe similar temperatures and densities as created in neutron star mergers and provide a tool to probe cosmic matter in earthly laboratories [1]

In March 2019, the HADES collaboration recorded $13.7 \cdot 10^9$ Ag(1.58A GeV)+Ag events as part of the FAIR Phase-0 program. Within this talk, we present preliminary results for yields and kinematic distributions of K^+ , K^- and $\phi(1020)$.

The presented strange hadrons are produced below the free nucleon-nucleon production threshold and thusly are a good probe for in-medium effects due to their steep excitation function. In this presentation, the relative yields of strange particles with different excitation energies are compared and their consistency with theoretical models and recent results of other experiments is reviewed. Especially comparing the $\phi(1020)$ with the Ξ^- provides further insight into the accuracy of particle production yield calculations in statistical models. Furthermore, the system size dependence of strangeness production is tested by comparing central and peripheral collisions.

[1] Adamczewski-Musch, J., Arnold, O., Behnke, C. et al. *Probing dense baryon-rich matter with virtual photons*. Nat. Phys. 15, 1040–1045 (2019), doi:10.1038/s41567-019-0583-8

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