Results on Strangeness Production from HADES

A. Schmah[1] for the HADES collaboration

[1]Technische Universität München

For the first time, at SIS energies, the combined and inclusive identification of sub-threshold produced K^+, K^- and ϕ-mesons was carried out. These data refer to the reaction Ar+KCl at kinetic beam energy of 1.756 AGeV, measured by the HADES collaboration. It will be demonstrated that the mesons are reconstructed with high purity. The same data also provide full phase space distributions for K^0_s-mesons and Λ-hyperons and an estimate of the not measured Σ-hyperons relying on strangeness balance. The result is compared to previous published data [1].
The transverse momentum distributions, rapidity distributions and multiplicities of the kaons (K^+, K^-) and ϕ-mesons are compared to previous measurement showing a nice agreement of the data with the available systematics [2]. The high statistics and quality of the K^0_s data allows studying of the low momentum region, which is supposed to be sensitive to in-medium modifications. The data are compared with theoretical models.
The percentage of K^--mesons stemming from the decay of ϕ-mesons was found to be 15- 45%. This result suggests that a considerable fraction of K^- are not produced in the hot and dense environment, due to the rather long lifetime of the ϕ-meson which decays at this beam energy predominantly outside the fireball.

[1] A. Foerster et al., arXiv:nucl-ex 0701014v1.
[2] M. Merschmeyer et al., Phys. Rev. C 6 (2007) 145.