Contribution ID: **36** Type: **Oral presentation**

Kaon and Phi Production in Pion-Nucleus Reactions at 1.7 GeV/c*

Tuesday, 12 September 2017 15:20 (20 minutes)

The production and properties of open and hidden strange hadrons (K^+, K^- and ϕ) in cold nuclear matter generated in pion-nucleus reactions ($\pi^- + A$, $A = C, W$) at $p_{\pi^-} = 1.7$~GeV/c has been investigated with the HADES setup (SIS18/GSI).\\
Exploring the modification of the (anti-)kaon spectral function in nuclear matter which should be already apparent at finite baryon densities is of particular interest. While, for the kaon (K^+, K^0) the repulsive KN-potential has been studied to some extent having a moderate strength ($20 - 40$~MeV), the existing data on in-medium effects of the antikaon produced off nuclear targets are very scare.
Moreover, the K^- can be absorbed in nuclear medium which should be driven by strangeness exchange processes on one ($K^-N \rightarrow Y\pi$) or more nucleons ($K^-NN \rightarrow YN\pi$). On the contrary, K^+ is not affected by strong absorption processes and can be treated as a quasi particle within nuclear matter, providing stringent constraints on the production mechanism of strange hadrons. In this context, also the ϕ production and absorption ($\phi \rightarrow K^+K^-$, $BR \sim 48.9$\%) off light and heavy nuclear targets is studied.\\
In this talk, we are presenting evidence of the K^- absorption on the basis of the K^-/K^+ ratios in both nuclear environments (C, W). In addition, the ϕ absorption in a nuclear medium is discussed by comparing the production off carbon and tungsten as well as the K^- production in terms of the ϕ feed-down.
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* supported by the DFG cluster of excellence "Origin and Structure
of the Universe" and SFB 1258

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Session Classification: Parallel P3 & P4

Track Classification: Kaon-nucleon and kaon-nucleus interaction