

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

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The production and properties of 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 at SIS18/GSI.

Of particular interest is the K^- absorption in nuclear matter 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^+ does not undergo strong absorption processes and can be treated as 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) and the obtained cross-section inside the HADES acceptance. 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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List of tracks

Strangeness production at low baryon densities

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