

Lambda - Proton Correlation in Pion-Induced Reactions at 1.7 GeV/c*

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World data for elastic $\Lambda - p$ scattering over a wide range of relative momenta are quite scarce and only available for small beam momenta with an overall statistics of less than 200.

The situation for π^- -induced reactions is even more limited.

In order to improve the theoretical description, new constraints are necessary to parametrise the cross sections.

In this context a dedicated $\pi^- + A$ ($A = C, W$) experimental campaign was performed at $p_\pi = 1.7 \text{ GeV}/c$ with the HADES detector (SIS18/GSI).

The Λ yield has been studied and further on the $\Lambda - p$ correlation is investigated.

For the reconstruction of the Λ in the inclusive spectra the charged decay channel ($\Lambda \rightarrow p\pi^-$, BR = 63.9%) is examined.

After topological cuts, an integrated yield of $\sim 11k$ Λ has been extracted with a purity of 93% ($\pi^- + W$).

The data is corrected for limited efficiency and acceptance and extrapolated to uncovered phase space by using a Boltzmann distribution.

For the study of the $\Lambda - p$ correlation it is necessary to know all kinematic variables of the Λ before the scattering, which are reconstructed with the incoming beam and the outgoing K^0 .

Thus, events with a matching charge pattern ($\Lambda \rightarrow \pi^- p, K^0 \rightarrow \pi^+ \pi^-, p$) are selected.

Based on a likelihood-method the particle species is determined considering the specific energy-loss in the MDCs and velocity β .

Since the selected pattern contains two π^- and p in the final state, an event hypothesis is applied to assign their corresponding mother particle.

The best combination is selected by a simultaneous matching of the invariant mass to the nominal value within the detector resolution.

This procedure leads to an extraction of $\sim 6k$ events in the $\pi^- + W$ system.

Shown on the poster is the extracted Λ yield, aside with the preliminary $\Lambda - p$ correlation.

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