

## Transverse Polarization of $\Lambda$ and $\bar{\Lambda}$ produced in $eN \rightarrow \Lambda(\bar{\Lambda})X$ Reaction at HERMES

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Polarization of the inclusively produced  $\Lambda$  and  $\bar{\Lambda}$  hyperons have been studied at HERMES using the 27.5 GeV positron beam of HERA and an internal gas target. From the data taken in 1996-2000 years the  $3.64 \cdot 10^5 \Lambda$  and  $0.61 \cdot 10^5 \bar{\Lambda}$  events have been selected at very small  $Q^2$  ( $Q^2 \leq 0.1 \text{ GeV}^2$ ) allowing the measurement of the  $\Lambda(\bar{\Lambda})$  polarizations with high statistical accuracy. Averaged over the data set of the transverse polarization of the  $\Lambda$  and  $\bar{\Lambda}$  hyperons was measured to be  $P_\Lambda = 5.3 \pm 0.5(\text{stat}) \pm 1.4(\text{syst})\%$  and  $P_{\bar{\Lambda}} = -4.0 \pm 1.2(\text{stat}) \pm 3.0(\text{syst})\%$  at the average kinematic variables  $\langle p_T \rangle = 0.56 \text{ GeV}/c$  and  $\langle E_\Lambda \rangle = 6.3 \text{ GeV}$ . The systematic uncertainty was estimated by measurements of a false ‘transverse polarization’ of  $K_s$  mesons or hadron-hadron pairs which are not originated from the  $\Lambda(\bar{\Lambda})$  decay.

The dependence of the  $\Lambda$  and  $\bar{\Lambda}$  transverse polarization on several kinematic variables will be discussed in detail including comparisons with various models.