Measurement of the Double Spin Asymmetries in the quasi real photo production of High-p_T Hadrons at HERMES

Hermes Collaboration

The HERMES experiment uses the polarized positron beam of the HERA accelerator together with a polarized internal gas target to study the spin structure of the nucleon. One of the open questions in the spin structure of the nucleon is the contribution of gluons to the nucleon spin. Studying double spin asymmetries in inclusive quasi-real photo production of single[1] or pairs[2] of hadrons gives the opportunity to access the polarized gluon and quark distributions. New data on double spin asymmetries for hadron pairs taken on a polarized deuteron target will be presented. First results on single hadron asymmetries on a proton target will be shown. Both datasets show a significant asymmetry at high transverse hadron momenta. An interpretation with respect to their sensitivity of both datasets to the gluon polarization was done using the theoretical model included in PYTHIA[3].

References

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