

Strange quark distribution in the nucleon extracted with K^+ , K^- detection in high energy deep inelastic scattering at HERMES.

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Abstract

HERMES is a deep inelastic scattering experiment at DESY with 27.6 GeV polarized electron/positron beam. Strange quark density and helicity distributions were extracted from charged kaon multiplicities and double spin asymmetries measured with the HERMES internal deuterium target in the DESY-HERA ring. The charged kaons were identified with the HERMES dual radiator Ring-Imaging Cherenkov counter in the momentum range from 2 to 15 GeV/c. [1]

The strange quark polarization in the proton is a key for understanding of the proton spin structure. It will reveal the missing spin components in the proton spin. The strange quark distributions are of interest also for the quark flavor SU(3) symmetry in the nucleon.

I will present the recent results on the strange quark distributions published by the HERMES collaboration [1] with brief review of the present experimental understanding of the proton spin problem.

[1] “Measurement of Parton Distributions of Strange Quarks in the Nucleon from Charged-Kaon Production in Deep-Inelastic Scattering on the Deuteron”

A. Airapetian et al, *Phys. Lett. B* (in press), *arXiv:0803.2993*