

Strange Quark-Antiquark Asymmetry of the Nucleon Sea from $\Lambda/\bar{\Lambda}$ Polarization

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Abstract

The existence of intrinsic quark and antiquark in the nucleon and their asymmetric distribution were suggested some time ago, but there is still no convinced evidence. We investigate the difference between quark to Λ and $\bar{\Lambda}$ longitudinal spin transfers in the light-cone quark-spectator diquark model at COMPASS, E665 and HERMES kinematic domains. Such a difference can provide additional information about the spin structure of the nucleon sea, i.e., the asymmetric strange-antistrange distribution of the nucleon sea. Our calculation shows that the asymmetric nucleon strange sea input gives a better description of the experimental data compared to the symmetric strange sea input. This can be regarded as a strong support to the existence of intrinsic strange quark sea and the asymmetric strange-antistrange distribution.

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