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Production and polarization of Lambda and Lambda-bar hyperons in Deep-Inelastic Scattering at COMPASS

Lambda and Lambda-bar hyperons were produced at the COMPASS experiment at CERN, using Deep-Inelastic Scattering (DIS) of 160 GeV/c polarized muons on a longitudinally polarized target.

The study of Lambda and Lambda-bar hyperons in DIS is important for the understanding of the nucleon structure, the mechanisms of hyperon production and the hyperon spin structure. In particular, it may provide valuable information on the unpolarized strange quark distributions $s(x)$ and $\bar{s}(x)$ in the nucleon.

The data sample contains about 70 000 Lambda and 42 000 Lambda-bar. Large and comparable statistics on both Lambda and Lambda-bar hyperons is a distinct feature of the COMPASS experiment. Preliminary results on the multiplicities of Lambda and Lambda-bar production, polarization of Lambda and Lambda-bar and yields of heavy hyperons in DIS are presented.

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