MEASUREMENT OF THE LIGHT ANTIQUARK FLAVOR ASYMMETRY IN THE NUCLEON SEA

Fermilab E866/NuSea Collaboration
(For a complete list of authors, see published paper.)

A precise measurement of the ratio of Drell-Yan yields from an 800 GeV/c proton beam incident on hydrogen and deuterium targets is reported. Over 140,000 Drell-Yan muon pairs with dimuon mass $M_{\mu^+\mu^-} \geq 4.5$ GeV/c^2 were recorded. From these data, the ratio of antidown ($\overline{d}$) to antiup ($\overline{u}$) quark distributions in the proton sea is determined over a wide range in Bjorken x . A strong x dependence is observed in the ratio $\overline{d}/\overline{u}$, showing substantial enhancement of ($\overline{d}$) with respect to ($\overline{u}$) for $x < 0.2$. This result is in fair agreement with recent parton distribution parametrizations of the sea. For $x > 0.2$, the observed $\overline{d}/\overline{u}$ ratio is much nearer unity than given by the parametrizations.

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