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Multiplicities of charged kaons from deep-inelastic muon scattering off an isoscalar target

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ABSTRACT

Precise measurements of charged-kaon multiplicities in deep inelastic scattering were performed. The results are presented in three-dimensional bins of the Bjorken scaling variable x, the relative virtual-photon energy y, and the fraction z of the virtual-photon energy carried by the produced hadron. The data were obtained by the COMPASS Collaboration by scattering 160 GeV muons off an isoscalar ^{6}LiD target. They cover the kinematic domain 1 $(\mathrm{GeV}/c)^2 < Q^2 < 60$ $(\mathrm{GeV}/c)^2$ in the photon virtuality, $0.004 < x < 0.4$, $0.1 < y < 0.7$, $0.20 < z < 0.85$, and $W > 5$ GeV/c^2 in the invariant mass of the hadronic system. The results from the sum of the z-integrated K^+ and K^- multiplicities at high x point to a value of the non-strange quark fragmentation function larger than obtained by the earlier DSS fit.

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