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Strangeness Production in Deep-Inelastic Positron-Proton Scattering at HERA

H1 Collaboration

Abstract

Measurements of K^0 meson and Λ baryon production in deep inelastic positron-proton scattering (DIS) are presented. The measurements, obtained using the H1 detector at the HERA collider, are discussed in the light of possible mechanisms for increased strangeness production at low Bjorken-x. Comparisons of the x_F spectra with electron-positron annihilation are made. The x_F spectra and the K^0 seagull plot are compared with previous DIS results. The mean K^0 and Λ multiplicities are studied as a function of the centre-of-mass energy and are observed to increase as a logarithmic function of energy when compared with previous measurements. A comparison of the levels of strangeness production in diffractive and non-diffractive DIS is made. An upper limit of 1 nb, at the 95% CL, is placed on the cross-section for QCD instanton production.

Plenary Sessions:
2. Soft Interactions and Diffraction Phenomena - S. Levonian
4. QCD and Low x Physics - H. Abramowicz, R. Brock

Parallel Session: I Strong Interaction Physics
2. Soft Interactions
3. Structure Functions and Low x Physics
4. Hard Processes and Perturbative QCD