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Measurement at HERA of the Cross Section for the Electroproduction at large Q^2 of ρ Mesons with Proton Dissociation

H1 Collaboration

Abstract

A measurement of the cross section for the production of ρ^0 mesons with proton dissociation is presented. The data were taken with the H1 detector at the HERA ep collider and amount to an integrated e^+p luminosity of $2.8\,\mathrm{pb}^{-1}$. For the kinematic range $32 > Q^2 > 7\,\mathrm{GeV}^2$ and $180 > W > 60\,\mathrm{GeV}$, no evidence is found for any variation with Q^2 and W of the ratio of proton dissociative to elastic ρ^0 cross sections. The differential cross section for proton dissociative ρ^0 meson production is presented as a function of Q^2 and p_T^2. Analysis of the $\rho \to \pi\pi$ decay angular distribution demonstrates that the ρ meson is predominantly longitudinally polarised.

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