Based on work done partly in collaboration with G. Ingelman, M. Klein, T. Nishnianidze, R. Radcli.

End of 1440: HERA

\[ \begin{align*}
0.01 & < x < 0.6 \\
1 & < Q^2 < 200 \text{ GeV}^2
\end{align*} \]

1. Introduction

2. Measurement Range

3. Systematic Corrections

4. Structure Functions

5. GPD Analysis

6. Conclusions

\( g(x,Q^2) \)

(b) systematic effects

(a) statistical precision for a

...
5 ORDERS OF MAGNITUDE IN $Q^2$
The text appears to be a page from a scientific or mathematical document, possibly discussing a theorem or equation related to fields such as physics or engineering. The text includes mathematical expressions and diagrams, but without clearer visibility, it's challenging to provide an exact transcription or explanation. The page seems to involve concepts of calculus, possibly discussing limits or integrals, given the notation and symbols used.
Group is of $0(1\%)$ or better

Numerical agreement between the results

Very recently:

\[ N_{\text{gc}} = N_{\text{nc}} \]

\[ x > 0.1, y > 0.2, \quad a > 0 \]

Errors for

Structure Functions

\[ M = \text{finite} \]

Lines crossing of $x = \text{const}$.
\[ \begin{align*}
\gamma^2 &= \frac{\exp \left( \frac{(x-a)^2}{2\sigma^2} \right)}{a^2 + b^2 + c^2} + \frac{\exp \left( \frac{(x-b)^2}{2\sigma^2} \right)}{a^2 + b^2 + c^2} + \frac{\exp \left( \frac{(x-c)^2}{2\sigma^2} \right)}{a^2 + b^2 + c^2} \\
\gamma^2 &= \frac{\exp \left( \frac{(x-a)^2}{2\sigma^2} \right)}{a^2 + b^2 + c^2} + \frac{\exp \left( \frac{(x-b)^2}{2\sigma^2} \right)}{a^2 + b^2 + c^2} + \frac{\exp \left( \frac{(x-c)^2}{2\sigma^2} \right)}{a^2 + b^2 + c^2} \\
\end{align*} \]
(a) \( E = m \pm 40 \text{ MeV} \)
\( \forall \mathbf{v} \neq 40 \text{ MeV} \)
\( \forall \mathbf{v} \neq 0 \text{ MeV} \)

\[ E^2 = P^2 + m^2 \]

\text{KeV/uranium}

\begin{align*}
\Delta E^2 & = \frac{dE_0}{dP_x} (E_0, x) \frac{dP_x}{dE_0} (E_0, x) = (E_0, x) \frac{dE_0}{dP_x} (E_0, x) \frac{dP_x}{dE_0} (E_0, x)
\end{align*}

\text{where}
\begin{align*}
\Delta E^2 & = \frac{dE_0}{dP_x} (E_0, x) \frac{dP_x}{dE_0} (E_0, x) = (E_0, x) \frac{dE_0}{dP_x} (E_0, x) \frac{dP_x}{dE_0} (E_0, x)
\end{align*}

\( \Delta E^2 = E_0 \frac{dE_0}{dP_x} (E_0, x) \frac{dP_x}{dE_0} (E_0, x) = (E_0, x) \frac{dE_0}{dP_x} (E_0, x) \frac{dP_x}{dE_0} (E_0, x)
\)

\text{Calibration uncertainty of the characteristics of release}

\( E^2 = E_0 (1 + \varepsilon) \), \( \varepsilon \in \mathbb{E} \)

\( \Delta E^2 = E_0 \frac{dE_0}{dP_x} (E_0, x) \frac{dP_x}{dE_0} (E_0, x) = (E_0, x) \frac{dE_0}{dP_x} (E_0, x) \frac{dP_x}{dE_0} (E_0, x)
\)

\( \text{Restricted phase space; shedding etc.} \geq 40% \)

(b) Systematic effects
6. Conclusions

The measurements of the above quantities are long term tasks.

7. The control of systematic uncertainties at the per cent level.

8. The study of ODD evolution in this range.

9. The flavor effects deserve further study.

10. A major systematic effect on $q^2 \Delta \rho$ is caused by the calorimeters.

1. HERA will probe the proton structure via deep inelastic scatter.

2. The $Q^2$ dependence of radiative corrections to deep inelastic scattering.

3. Among the various structure functions and combinations of

$Q^2$ needed for the QCD analysis.

4. The statistical precision on $q^2$ can be improved.

5. The statistical precision on $\Delta \rho$ is about 100 MeV.

6. In this case, the lower limit on $\rho$ is $10^3 Q^2$.

7. At $Q^2 = 10^4 Q^2$ the lower limit on $\rho$ is $10^3 Q^2$.

8. The $Q^2$ dependence of radiative corrections to deep inelastic scattering.

9. The $Q^2$ dependence of radiative corrections to deep inelastic scattering.

10. A major systematic effect on $q^2 \Delta \rho$ is caused by the calorimeters.

1. HERA will probe the proton structure via deep inelastic scatter.