Abstract 260
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An Accurate Measurement of the Proton Structure Function $F_2(x, Q^2)$ and a New Determination of the Longitudinal Proton Structure Function $F_L(x, Q^2)$ at HERA

H1 Collaboration

A new measurement of the proton structure function $F_2(x, Q^2)$ is reported for momentum transfers squared $0.85 < Q^2 < 120\,\mathrm{GeV}^2$ and for Bjorken-x values $10^{-5} < x < 0.1$ using data collected by the HERA experiment H1 in 1995 and 1996. A QCD analysis of this data together with measurements of the structure function $F_2(x, Q^2)$ from fixed target experiments is presented. A new result on the longitudinal proton structure function $F_L(x, Q^2)$ for $8 < Q^2 < 50\,\mathrm{GeV}^2$ is extracted from the measurement of the ep differential cross-section in a kinematic range extended to large inelasticity values of y up to 0.9.