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Elastic Electroproduction of ρ Mesons for $1 < Q^2 < 60\ \mathrm{GeV}^2$ at HERA

H1 Collaboration, DESY

The total cross section for the elastic electroproduction of ρ mesons is measured at HERA with the H1 detector for the photon virtuality in the range $1 < Q^2 < 60$ GeV^2 and for the hadronic centre of mass energy in the range $30 < W < 140$ GeV, using 1995 and 1996 data sets. The shape of the ρ mass distribution is studied as a function of Q^2. Measurements are presented of the dependence of the cross section on Q^2, W, t (the four-momentum transfer squared to the proton), and of the vector meson polarisation state.