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Measurement of Di-jet Cross-Sections in Low Q^2 Deep-Inelastic Scattering Processes at HERA and the Extraction of an Effective Parton Density of the Virtual Photon

H1 Collaboration, DESY

Differential di-jet cross sections are measured in deep-inelastic scattering processes for photon virtuality $Q^2 > 1.6\ \mathrm{GeV}^2$ with the H1 detector at HERA. The results are compared with leading and next-to-leading order QCD calculations which include the effects of a resolved component to the virtual photon. The suppression of the parton density with increasing virtuality of the photon is quantified using the ratio of di-jet production in resolved to direct photon-proton interactions. An effective leading order parton density for the virtual photon is extracted in different bins of the photon virtuality. The parton densities are compared with QCD inspired model predictions.