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Transverse momentum correlations in Deep–Inelastic Scattering and Photoproduction at HERA

H1 Collaboration

Second-order normalized differential correlation functions are measured as a function of the difference in transverse momentum (Δp_T) in deep-inelastic ep collisions and in photoproduction at HERA with the H1 detector. The correlations for like-charged hadron pairs reveal a strong increase with decreasing Δp_T. In small rapidity windows, this increase is well described by a simple power law. If interpreted as orginating from Bose-Einstein correlations, such a behaviour indicates a power-law structure of the transverse spatial distribution of the particle source. The results are discussed within the framework of the Mueller dipole approach.