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Ioffe times in DIS from a dipole model fit. (English) Zbl 1271.81175
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Summary: We present a study of Ioffe times in deep inelastic electron-proton scattering. We deduce 'experimental' Ioffe-time distributions from the small-x HERA data as described by a particular colour-dipole-model fit. We show distributions for three representative $\gamma^* p$ c.m. energies W and various values of the photon virtuality Q^2. These distributions are rather broad for transversely and very narrow for longitudinally polarised virtual photons. The Ioffe times for $W = 150$ GeV, for example, range from around 10^3 fm for $Q^2 = 1$ GeV^2 to around 10 fm for $Q^2 = 100$ GeV^2. Based on our results we discuss consequences for the limitations of applicability of the dipole picture.

MSC:

81V05 Strong interaction, including quantum chromodynamics
81V35 Nuclear physics

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deep inelastic scattering; phenomenological models; QCD

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Cuba; GSL

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