

On parton number fluctuations at various stages of the rapidity evolution

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Starting with the interpretation of parton evolution with rapidity as a branching-diffusion process, we describe the different kinds of fluctuations of the density of partons which affect the properties of QCD scattering amplitudes at moderately high energies. We then derive some of these properties as direct consequences of the stochastic picture. We get new results on the expression of the saturation scale of a large nucleus, and a modified geometric scaling valid at intermediate rapidities for dipole-dipole scattering.

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