

XXVIII International Workshop on Deep-Inelastic Scattering and Related Subjects



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Probing gluon density fluctuations at large momentum transfer $|t|$

We study the geometrical fluctuations of proton substructure using incoherent diffractive processes at HERA and show that the gluon density fluctuations inside the proton exists at very small length scales $r \sim 0.07$ fm. A good description of J/ψ incoherent data at large momentum transfer is obtained on taking into account these fluctuations in event-by-event fluctuations. The transverse profile of gluon density shows a self-similar property i.e. smaller hotspots are found within bigger hotspots of gluon density as we increase the resolution. We investigate these fluctuations in both the saturated and non-saturated dipole model in ep scattering.

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