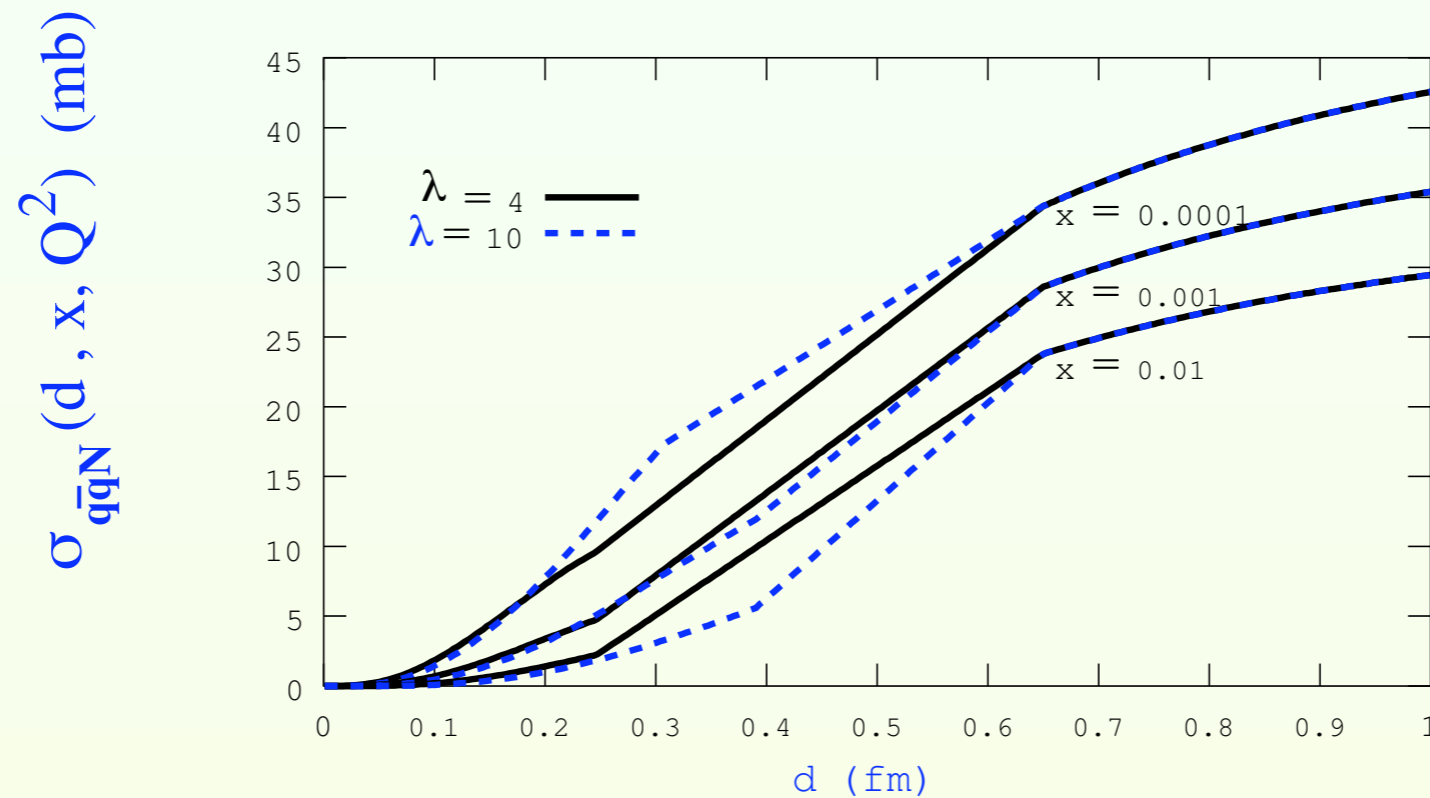


HERA data confirm increase of the cross sections of small dipoles predicted by pQCD



The interaction cross-section, $\hat{\sigma}$ for CTEQ4L, $x = 0.01, 0.001, 0.0001$, $\lambda = 4, 10$. Based on pQCD expression for $\hat{\sigma}$ at small d_t , soft dynamics at large b , and smooth interpolation. Provides a good description of F_{2p} at HERA and J/ψ photoproduction.

Frankfurt, Guzey, McDermott, MS 2000-2001

Provided a reasonable prediction for σ_L

Using information on the exclusive hard processes we can also estimate t-dependence of the elastic dipole-nucleon scattering and hence estimate

$$\Gamma_{q\bar{q}} \text{ from } \sigma(q\bar{q}N).$$

In the case gg-N scattering we assume pQCD relation

$$\Gamma_{gg} = \frac{9}{4} \Gamma_{q\bar{q}}$$

