Contribution ID: **609** Type: **Talk**

Investigation of high energy behaviour of HERA data

Tuesday, July 28, 2020 8:00 PM (15 minutes)

We analyse the high precision HERA F_2 data in the low-x, $x < 0,01$, and very-low-x, $x < 0.001$, regions using λ-fits. λ is a measure of the rate of rise of F_2 defined by $F_2 \propto (1/x)^{\lambda}$. We show that λ determined in these two regions, at various Q^2 values, is systematically smaller in the very-low-x region as compared to the low-x region. We discuss some possible physical interpretations of this effect.

Our observation that the value of the exponent λ decreases at small values of x, indicates that measurements at the future ep colliders, like VHEeP or LHeC will become exciting, as they will approach the high energy limit of the virtual photon-hadron cross sections, where DGLAP and BFKL meets and the confinement effects should become simple.

The analysis is based on Phys.Lett. B802 (2020) 135199.

Secondary track (number)

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Session Classification: Strong Interactions and Hadron Physics

Track Classification: 06. Strong Interactions and Hadron Physics