



Contribution ID: 97

Type: **not specified**

Using the BFKL resummation to fit DIS data: collinear and running coupling effects

Tuesday, 27 March 2012 15:05 (20 minutes)

The proton structure function F_2 is studied in the low x regime using BFKL evolution instead of the usual DGLAP approach, suited for large values of the DIS x variable. The NLL analysis requires the inclusion of running coupling effects which lead to off-diagonal terms in the BFKL kernel that need to be treated carefully. We also introduce an all-orders resummation that improves the collinear behavior of the NLL BFKL result. This study is presented emphasizing the theoretical uncertainties that appear throughout the analysis and a comparison with the combined HERA data is given.

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Session Classification: Structure functions

Track Classification: Structure functions