Contribution ID: **8** Type: **not specified**

Resumming large collinear logarithms in the non-linear QCD evolution at high energy

Monday, 30 May 2016 17:00 (30 minutes)

The Balitsky-JIMWLK equations which govern the QCD evolution at high energy and in the presence of unitarity corrections are presently known to next-to-leading order accuracy. However, the NLO approximation turns out to be unstable, due to large radiative corrections enhanced by double, or single, collinear logarithms, i.e. logarithms generated by the transverse phase-space. Via an explicit diagrammatic analysis, we clarify the origin of these logarithmic corrections and perform their resummation at the level of the BK equation (the large Nc limit of the Balitsky-JIMWLK hierarchy). Numerical studies demonstrate that, due to this resummation, the evolution becomes stable and it is also considerably slowed down (as it should, to be consistent with the phenomenology). Using the solution to the collinearly-improved BK equation, we obtain excellent fits to the HERA data for electron-proton deep inelastic scattering at high energy.

Presenter: IANCU, Edmond

Session Classification: Talks