Contribution ID: **221**   Type: **Parallel Session Talk**

Non-linear evolution in QCD at low-x beyond leading order

Tuesday, April 9, 2019 9:30 AM (20 minutes)

The NLO Balitsky-Kovchegov (BK) equation describing the high-energy evolution of the scattering between a dilute projectile and a dense target suffers from instabilities unless it is supplemented by a proper resummation of large (anti-)collinear logarithms. Earlier studies showed that if one expresses the evolution in terms of the rapidity of the dilute projectile, the dominant anti-collinear contributions can be resummed to all orders. However, in phenomenological applications, the results must be re-expressed in terms of the rapidity of the dense target. We show that although they lead to stable evolution equations, resummations expressed in the rapidity of the dilute projectile show a strong, unwanted, scheme dependence when their results are translated in terms of the target rapidity. Here, we work directly in the rapidity of the dense target where anti-collinear contributions are absent but where new, collinear, instabilities arise. These are milder since disfavoured by the typical BK evolution. Studying several prescriptions for resumming these new double logarithms, we find only little scheme dependence. The resummed equations are non-local in rapidity and can be extended to full NLO accuracy.

Author: Dr TRIANTAFYLLOPOULOS, Dionysios (ECT*/FBK)

Co-authors: DUCLOUE, Bertrand (IPhT Saclay); IANCU, Edmond (Université Paris-Saclay (FR)); MUELLER, Alfred (Columbia University); SOYEZ, Gregory (IPhT, CEA Saclay)

Presenter: Dr TRIANTAFYLLOPOULOS, Dionysios (ECT*/FBK)

Session Classification: WG2: Small-x and Diffraction

Track Classification: WG2: Low-x and Diffraction