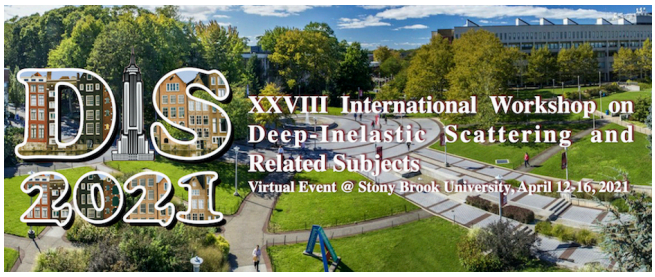

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A novel formulation of the unintegrated gluon distribution for DIS

Tuesday, 13 April 2021 13:30 (18 minutes)

Understanding the relation between QCD evolution in the Bjorken limit and the Regge limit is crucial to achieve a complete and smooth picture of proton and nuclear structure. The hope in the small x regime (where gluon density is expected to reach saturation and the naif partonic breaks down), was that by computing higher order corrections to small x evolution (BK equations) one would capture more and more of the physics at moderate x. However, this research program has encountered some challenges. At NLO large collinear logarithms are present and need to be resummed spoiling the renormalization group structure established at LO.

In order to overcome these formal difficulties, we revisit the shock wave approach for high energy scattering. A new gauge invariant operator definition of the unintegrated gluon distribution that accounts systematically for the collinear limit of structure functions emerges naturally in our framework. I will discuss in particular inclusive DIS as a first application.

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