APR15-2015-000477

Abstract for an Invited Paper
for the APR15 Meeting of
the American Physical Society

**Color fluctuations in pA collisions at collider energies**

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In pA collisions at collider energies a projectile stays in a frozen configuration over the distances which by far exceed the nuclear diameter. As a result proton coherently interacts with nucleons along its impact parameter. In QCD nucleon is build of configurations of different transverse size which are expected to interact with different strength leading to the fluctuations of the global strength of the projectile interaction. Also, configurations of smaller size are expected to have a reduced gluon field leading to a correlation of soft and hard interactions. The shape of the distribution over the strength of interaction is strongly constrained by the diffractive pp data, behavior of the distribution for $\sigma \to 0$ expected in pQCD, etc [1]. We developed a Monte Carlo procedure for taking into account these effects in soft collisions and collisions with a hard trigger taking into account difference of the transverse scales of hard and soft interactions [2, 3]. We predicted that distribution over the number of wounded nucleons should be broader than in the Glauber model in agreement with the recent LHC data. We argue that a strong violation of the Glauber approximation in the dependence of the rate of forward jet production on centrality observed in pA collisions at the LHC provides the first experimental evidence that parton configurations in the projectile proton containing a parton with large $x_p$ interact with a nuclei with a significantly smaller than average cross section and have smaller than average size. Implementing effects of the interaction strength fluctuations and using the ATLAS analysis of the dependence of the hadron production at backward rapidities on the number of wounded nucleons, we make quantitative predictions for the centrality dependence of the jet production rate as a function of the interaction strength $\sigma(x_p)$. We find $\sigma(x_p = 0.6) \sim \sigma_{tot}(pp)/2$ [4] which sheds light on the origin of the EMC effect. Future pA dijet studies along these lines would allow to investigate the global 3D structure of the nucleon and in particular trigger on configurations which interact with the strength larger than average.

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