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Vector meson production using Balitsky-Kovchegov equation including the dipole orientation

Monday 11 December 2023 18:00 (30 minutes)

In this talk a solution of the target-rapidity Balitsky-Kovchegov (BK) equation will be presented considering the complete impact-parameter dependence, including the orientation of the dipole with respect to the impact-parameter vector. The target-rapidity formulation of the BK equation introduces non-locality in rapidity. Three different prescriptions are considered to take into account the rapidities preceding the initial condition. The solutions are used to compute the structure functions of the proton and the diffractive photo- and electro-production of J/ψ off protons and nuclei. The predictions agree well with HERA data, confirming that the target-rapidity Balitsky-Kovchegov equation with the full impact-parameter dependence is a viable tool to study the small Bjorken-x limit of perturbative QCD at current facilities like RHIC and LHC as well as in future colliders like the EIC.

Primary author: Dr CEPILA, Jan (Czech Technical University in Prague (CZ))

Presenter: Dr CEPILA, Jan (Czech Technical University in Prague (CZ))

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