The charged hadron production with collinearly-improved unintegrated gluon distribution in heavy-ion collisions

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Based on the framework of Color Glass Condensate (CGC), we study the hadron production with collinearly-improved unintegrated gluon distribution which is obtained by numerical solving the collinearly-improved next-to-leading Balitsky-Kovchegov equation. We calculate the multiplicity and transverse momentum distributions of the charged hadron in p+p and p+A collisions at RHIC and LHC energies. We find that the predictive power of the CGC hadron production model is significantly improved once the collinear corrections are taken into account.

Summary

The collinearly-improved CGC hadron production model gives a good description of the charged hadron multiplicity and momentum distributions in 7 TeV, 2.36 TeV and 4.4 TeV at LHC, which shows a hint that the CGC may appear at LHC energies.

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