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# Forward Dihadron Angular Correlations in $pA$ collisions

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Dihadron angular correlations in forward  $pA$  collisions have been considered as one of the most sensitive observables to the gluon saturation effects. In general, both parton shower effects and saturation effects are responsible for the back-to-back dihadron angular de-correlations. Recent developments have allowed to incorporate the so-called parton shower effect, namely the Sudakov effect, into the small- $x$  formalism [1-3]. This, in particular, will enable us to go beyond the saturation dominant region, and conduct calculations for dihadron correlation in a much wider regime where both saturation effects and Sudakov effects are important.

In this paper [4], we carry out the first detailed numerical study in this regard, and find a very good agreement with previous RHIC  $pp$  and  $dAu$  data. This study can help us to establish a baseline in  $pp$  collisions which contains little saturation effects, and further make predictions for dihadron angular correlations in  $pAu$  collisions, which will allow to search for the signal of parton saturation.

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[2] P. Sun, C.-P. Yuan and F. Yuan, Phys. Rev. Lett. 113, no. 23, 232001 (2014); Phys. Rev. D 92, no. 9, 094007 (2015).

[3] A. H. Mueller, B. Wu, B. W. Xiao and F. Yuan, Phys. Rev. D 95, no. 3, 034007 (2017).

[4] A. Stasto, S. Y. Wei, B. W. Xiao and F. Yuan, to appear.

## Content type

Theory

## Collaboration

## Centralised submission by Collaboration

Presenter name already specified

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