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Longitudinal Double Spin Asymmetry at Small x

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Double spin asymmetries for particle and jet productions in longitudinally polarized proton-proton collisions are among the key measurements at RHIC to extract the spin fraction of gluons inside the proton. Although next-to-leading order perturbative QCD predictions have been quite successful in fitting experimental data within the RHIC kinematics, to constrain gluons at even smaller x , one needs theoretical predictions including the small x evolution and gluon saturation effect. In this talk, I will present our efforts towards completing this task. To be specific, we have calculated the longitudinal double spin asymmetry for soft gluon production at midrapidity in the small x regime. Our result is expressed in terms of polarized Wilson lines and is related to quark and gluon helicity distribution of the proton at small x . The result can also provide valuable information on phenomenology related to small x helicity evolution.

Submitted on behalf of a Collaboration?

No

Participate in poster competition?

No

Primary author: LI, Ming

Co-authors: Prof. KOVCHEGOV, Yuri; ADAMIAK, Daniel (Ohio State University)

Presenter: LI, Ming

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