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Probing the Spin Structure of the Proton via Heavy Flavor Production at PHENIX HAN LIU, Los Alamos National Lab, PHENIX COLLABORATION — At RHIC energy, heavy flavor production is dominated by gluon gluon fusion. So measurements of spin asymmetries in heavy flavor production are expected to provide valuable new information about the spin structure of the nucleon. In particular, the longitudinal double spin asymmetries (A_{LL}) will allow us to directly probe the polarized gluon distribution $\Delta G(x)$ and the dynamics of spin dependent QCD hard-scattering beyond light hadrons and jet productions. The transverse single spin asymmetries (A_N) are sensitive to the gluon Sivers function which is related to the orbital angular momentum of gluons inside the proton. Furthermore, A_N in J/ψ production can give us more insight on the production mechanism of quarkonia. The latest PHENIX results on A_{LL} and A_N of J/ψ and open heavy flavor will be presented in this talk.

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