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Results on Transverse Spin Asymmetries in Polarized Proton - Proton Elastic Scattering at $\sqrt{s} = 200$ GeV

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We present a preliminary result on a precision measurement of the transverse double spin asymmetries ANN and ASS in polarized proton-proton elastic scattering at $\sqrt{s} = 200$ GeV in the small four momentum transfer squared (t) region $0.005 < -t < 0.035$ (GeV/c)², the Coulomb Nuclear Interference (CNI) region. This preliminary result is based on about 20 million elastic events acquired by the STAR experiment at RHIC during the run with dedicated optics of $\beta^* = 20$ m. The preliminary values of ANN and ASS show that they are about equal, small but distinguishable from zero: $ANN \approx ASS = -0.0051 \pm 0.0006(\text{stat}) \pm 0.0010(\text{sys})$. We shall also present the result on the single transverse spin asymmetry AN obtained from the same sample of events. The result on AN can be explained by the interference of electromagnetic spin-flip and hadronic non-flip amplitude.

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