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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 transferred (t) region $0.005 < -t < 0.035$ (GeV/c)², the Coulomb Nuclear Interference (CNI) region, which were obtained with the STAR experiment at RHIC. The result is based on about 20 million elastic events acquired in a run with dedicated optics. The preliminary values of $ANN \approx ASS = -0.0051 \pm 0.0006(\text{stat}) \pm 0.0010(\text{sys})$, they are small but distinguishable from zero. 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, so called CNI interference.

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