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Measurement of the Transverse Single Spin Asymmetry A_N in Polarized Proton-Proton Elastic Collisions at $\sqrt{s} = 200$ GeV[1] DONIKA PLYKU[2], Old Dominion University, Norfolk, VA, USA — The STAR experiment at RHIC is equipped with insertion devices (Roman Pots) that allow detectors to be moved close to the beam for the measurement of protons at very small scattering angles. This setup, together with the unique capability of RHIC to collide spin-polarized proton beams, allows STAR to study both unpolarized and spin-dependent proton-proton (pp) elastic scattering. Silicon strip detectors installed inside the Roman Pots, measure tracks of protons scattered diffractively at very small angles. In a dedicated run with special beam optics during the 2009 RHIC run, the experiment collected about 20M elastic events with transversely polarized proton beams at $\sqrt{s} = 200$ GeV and four-momentum transfer squared (t) range of $0.003\ \text{GeV}^2/c^2 \leq |t| \leq 0.035\ \text{GeV}^2/c^2$, where, due to the Coulomb Nuclear Interference (CNI), a measurable single spin asymmetry arises. In this talk, we report on a high precision measurement of the transverse single spin asymmetry A_N at $\sqrt{s} = 200$ GeV. The measured A_N and its t-dependence are consistent with the absence of a hadronic spin-flip amplitude.

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[2]Abstract submitted on behalf of the STAR Collaboration

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