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Stable spin direction measurements at RHIC with polarized proton beams

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We describe methods for measuring the three-dimensional stable spin vector for RHIC stores at two locations in the ring, namely the proton-Carbon (pC) polarimeters and the interaction point at the STAR detector. Both the pC and STAR local polarimetry can only measure the two transverse components of the stable spin direction. Measuring the full spin vector requires making a local spin rotation at the measurement point. This is accomplished using the helical dipole spin rotators for STAR and a local horizontal orbit angle for the pC polarimeters, respectively. The stable spin direction at a third point, the hydrogen jet polarimeter is determined via spin tracking from the nearby pC polarimeter. We describe the measurement and analysis methods used and present results of the measurements made during RHIC Run 22.

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Footnotes

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Yes

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