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Proton Polarimetry at RHIC OLEG EYSER, Brookhaven National Laboratory, CNI POLARIMETER TEAM — The Relativistic Heavy Ion Collider (RHIC) has provided polarized proton-proton collisions to experiments for the past decade with beam polarizations of P=55% at beam energies of up to 255 GeV. The polarization of the proton beams is measured through spin dependent elastic scattering off a polarized hydrogen jet target and similarly monitored with Carbon fiber targets several times throughout the typical 8 hours of a stored RHIC fill. With recent advancements in beam luminosities, the largely increased data sets have enabled unprecedented possibilities to study systematic effects in the polarimeters. We will discuss details of the background contributions, properties of the polarized beams, and their implications on systematic uncertainties. The beam polarization as well as its uncertainty are vital input to the RHIC experiments since they directly affect the scale uncertainty of any polarized observable.

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