Polarimetry at the AGS.

A. Poblaguev\textsuperscript{a*}, I. Alekseev\textsuperscript{b}, E. Aschenauer\textsuperscript{a}, G. Atoian\textsuperscript{a}, A. Basilevsky\textsuperscript{a}, K. O. Eyser\textsuperscript{a}, H. Huang\textsuperscript{a}, Y. Makdisi\textsuperscript{a}, W. Schmidke\textsuperscript{a}, D. Smirnov\textsuperscript{a}, D. Svirida\textsuperscript{b}, K. Yip\textsuperscript{a}, A. Zelenski\textsuperscript{a}

\textsuperscript{a}Brookhaven National Laboratory,
Upton, NY 11973, USA

\textsuperscript{b}Institute for Theoretical and Experimental Physics,
Moscow, 117218, Russia

Proton beam polarization measurement is essential for the Relativistic Heavy-Ion Collider (RHIC) spin program at Brookhaven National Laboratory (BNL) [1]. A proton-Carbon polarimeter is used to monitor beam polarization at Alternative Graduate Synchrotron (AGS) which injects 24 GeV/c protons into the RHIC. Polarization measurement is based on observing asymmetry of elastic beam proton scattering with low momentum transfer (Coulomb nuclear interference region) on a very thin carbon ribbon target. A few minute exposure provides a polarization measurement with statistical accuracy of about 2–3%. Since the carbon target width is much smaller than the beam size, polarization profile can be also measured. Performance of the AGS polarimeter in the RHIC Run 13 will be discussed.

References

\textsuperscript{*}Corresponding author. \textit{E-mail address:} poblaguev@bnl.gov