

ACCELERATOR SEMINAR

“Polarized proton at RHIC: Status and Future Plan”

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The Relativistic Heavy Ion Collider~(RHIC) at BNL have been providing collisions of polarized protons at a beam energy of 100 GeV since 2001. With the help of the two full Siberian snakes in each ring as well as careful orbit correction and working point control, polarization is preserved during acceleration from injection to 100~GeV. The spin rotators on either side of the experiments of STAR and PHENIX are also employed to provide longitudinal polarization for the Physics data taking. Lately, RHIC also first delivered polarized proton collision at 250 GeV, its design beam energy. Depolarization was observed between beam energy 100 GeV and 250 GeV, and about 35% average polarization was achieved for Physics stores.

Over the years, various techniques like beta* squeeze below 1m, NEG coating beam pipes to minimize electron cloud effect and etc were implemented to increase luminosity. During the RHIC polarized proton run at beam energy of 100 GeV, beta* at the two detectors was squeezed down to 0.7m. The luminosity of the RHIC polarized proton performance is currently limited by the beam-beam effect. This talk reports what have been achieved in RHIC polarized proton program and future plans for improvements in both polarization as well as luminosity.

Thursday, March 25, 2010

3:30 p.m. – 4:30 p.m.

CEBAF Center, L102/104

Coffee before Seminar

Beginning at 3:00 p.m.