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It seems real to accelerate and store polarized antiprotons in the high-energy storage ring (HESR) at FAIR. We accept that all the problems connected with production and depolarization of the antiproton beam had been solved.

It is known that high-energy protons can be extracted from the beam halo in a collider (as, for example, it was done at Tevatron FNAL) using channeling in a bent crystal without interfering in the main experiment.
But for heavy negative particles (antiprotons) this method of beam deflection is inefficient due to the fast dechanneling.

At the HESR the planned internal coasting beam could reach 10^{11} antiprotons in the momentum range 1.5-15 GeV/c.
One might try to extract halo antiprotons, which can not be utilised at the PANDA facility by means of a several meter long electrostatic septum with a field of about 80 kV/cm.
The initial direction of polarization does not matter (probably, it will be longitudinal), it can be rotated in any direction before the polarized target.
Then the beam is deflected by a magnetic field into the solid polarized target.

It should be noted that the halo formation mechanism in the HESR differs from that in FNAL storage ring, where the in-beam scattering is the main process. In the HESR at the minimal momentum the main contribution comes from Coulomb scattering, while at the maximal momentum - from nuclear processes. The beam lifetime for the HESR is about 1 hour, while for FNAL it equals to about 70 hours. It can be expected, that in the HESR the substantial share of antiprotons lost due to interactions with pellets comes to the halo.

The simulation has been done with BETACOOL code for PANDA parameters with using the barrier bucket and electron cooling systems. The longitudinal acceptance was chosen equal to the effective barrier bucket height. It means that particle will be lost after interaction with the target pellet if the energy decreasing is larger than the barrier height.

For the cycle duration equal to 1 hour an average intensity will be $\sim 10^6$ antiprotons/s, which, for the typical 10 cm long polarized target, corresponds to the luminosity $\sim 10^{30}$ cm^{-2} s^{-1}.

Another possibility is to use the accumulated antiprotons in HESR which are not utilised entirely, and to extract them slowly at the end of the cycle and send to the polarized target. For example, at slow variation of the radial betatron oscillation frequency the particles get to the instability region and end up in the septum due to the resonance build-up of oscillation amplitude.

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