

One solution to deal with polarization loss in the AGS is to raise the AGS injection energy. Haixin presented spin tracking results on how strong a partial snake has to be. At such a low energy, a helical partial snake is not an option. A solenoidal snake was put in C3 section in the lattice. Kevin pointed out that E3 and B6 were actually better choices. However, since beam dump is located at B6 (but not being used), Leif thought it's not a good idea to get rid of it. The simulation shows that for a 10π beam, a 6.7% partial snake is required to overcome $0+\nu$ in the Booster. The magnet should be rampable, otherwise, it would give stronger partial snake near injection and cause spin matching as well as horizontal/coupling resonance problems. It has to cope with the fast ramp rate of the Booster main magnet. Thomas pointed out that the tracking is only through a small portion of the whole Booster energy range and one needs to know the whole effect from the injection to the extraction. Kevin asked if tune jump is an option. Thomas commented that the resonances are strong and it would require a system similar to the AGS one. It also would mess up the emittance. Waldo asked if putting two partial snakes in the opposite sides of the Booster ring could solve the coupling and spin matching problems. It is an interesting thought and worth of pursuing for details.

Anatoli raised question why the Booster scraping in run6 can get smaller vertical emittance, but not run8. We agreed that this should be a homework for Keith to investigate the setup differences for the two runs.

Thomas suggested to study the details of the $h=6$ setup for the coming runs, which is more straightforward than other options on the table (tune jump, raising AGS injection energies). We need to find answers for following questions: What is the $\Delta p/p$ in the Booster? Can we match it in the AGS? What is the impact to the AtR synchro setup with $h=6$? The discussion went on the the AGS flattop ripple effect. The ongoing ripple reduction AIP only covers P bank, not F bank. So the flattop ripple problem won't benefit from it. Wolfram recalled that the AGS main field has to be adjusted by a few Gauss, or 10^{-4} level, which is quite possible the ripple amplitude.

Woody now is looking at the polarized proton quads for the horizontal tune jump now. After some discussion, it is agreed that the aperture is not a problem for pp operation. Leif pointed out that the WCM did not show big loss between first and second turn. For Au operation, Woody is concerned about the beam loss at these ceramic beam pipes. Thomas pointed out To evaluate the heating problem, Peter Thieberger will evaluate those beam pipes caused vacuum failure during run8. According to Leif, there is no clear picture on what exactly happened to each of the beam pipes from vacuum group. Since the Au ion still has two extra electrons in the AGS, the stripping effect is a concern. Clearly, understand the vacuum pipe failure from both observation and simulation are very beneficial.

At the end of the meeting, Thomas suggested to Mei to report the strategy for RHIC in the coming run. Specifically, more details on the the spin tune change due to snake current, orbit angles. The required alignment around snakes will be discussed with Frank Karl and Vadim.

Haixin