

Haixin presented a list of options to improve polarization and intensity for run8. The discussion was focused on the possible polarization loss around $36 + \nu$. The polarization ramp measurements in past a few years showed polarization drops at $36 + \nu$, but the error bars are large and it is not conclusive. The simulation on the other hand shows 10% polarization loss for the 10% cold snake case. If we plan to lower the AGS extraction energy, the big question is if spin can be matched. Waldo thinks the stable spin direction is tilted away so much that it is hard to be compensated by rotators and snakes in RHIC. Adding a spin rotator in AtR line would need about five time stronger solenoid as the AGS solenoidal partial snake, as Thomas pointed out. The second question is if faster acceleration rate improve polarization. This is not intuitive since these resonances are partial snake resonances and Froissart-Stora formula dose not apply. From Fanglei's spin tracking on $36 + \nu$ with two crossing rates and two vertical tunes, the polarization gain with 14% cold snake case is less than 1% while the gain with 10% cold snake is about 2%. Waldo questioned what would happen if horizontal motion is included (the horizontal emittance was set to zero in the tracking). Given the fact that we have to compomise between horizontal resonances and vertical resonances which have conflict requirement of snake strength, Thomas asked if we can find an optimized snake stregnth for AGS from spin tracking simulation. Kevin asked if we can quantify the polarization (or intensity) gains from all items on the list. Haixin will try to come up with numbers.

Haixin