

There was no presentation today. First a few minutes are exchange news and rumors about the budget and the impact of the AGS pp run. Haixin asked for the detailed plans of the job list. As Leif pointed out, if well-prepared, we can take all quantities we want and also do the analysis right after. For the IPM study, Kevin stated that we would need proton beam. Current analysis of extraction ORM data has delivered an optics with beta wave and strong harmonics 18 and 3. This is achieved with tweaking quadrupole strength to match the measured betatron tunes. Mei said she would try to find knobs to fix the 18th harmonic, which she feels more important than finding the source of the harmonic. She also suggested to ask for help from a graduate student at NSLS who has his own version of ORM analysis tool. It seems that he does not cause much disturbance on the ongoing ORM analysis.

The discussion then moved to AGS modeling. Kevin pointed out that the standard model of AGS is in MADX based on Bleser's model of AGS combined function magnets. The MAD8 version of AGS model gives same results as Kevin tested. Such a model agree with tune measurement at injection (with zero Bdot). This model currently can not predict tunes and chromaticities(worse) along the ramp. There could be combination of three possibilities of the disagreement: 1) Bdot effect which has never been included in Bleser's model. 2) snake effect. 3) Magnet errors. Hopefully we can get some hint from Wuzheng's 3D OPERA analysis on item 1. A bare machine ORM measurement will eliminate item 2 and tell us about item 3. Adding snakes is another issue. All field maps are from Alfredo and they are along a given beam trajectory. The snake maps from Alfredo are believed for MAD8, and Kevin will check if the matrices for MADX version are available. It is agreed that we will take bare machine tunes, chromaticities and ORM data next run. Leif added that there were data of tunes and chromaticities in run5 for cases with and without cold snake at injection, which could be used to check with model on the snake effect. Waldo suggested to get different field maps with different radii (orbits) for this analysis.

The discussion went on to the accuracy of the snake map. As it is done with OPERA, the accuracy should be pretty good. However, waldo and Dejan pointed out that the matrices were made symplectic after generating them. This would make them suitable for long term tracking (> millions turns), but may not be needed for AGS case. In any case, the approximation should be good for the short time.

In the end Kevin explained the Bleser's model in details. In analyzing the chromaticity data, Bleser found an error in interpreting the BPM data. After the correction, the chromaticities agreed with SY Lee/ Tepikian's prediction of $\xi_x + \xi_y = -1$. In the analysis, magnets are only based on magnet measurements. At that time, the AGS injection was done as injection on the fly (no Booster). There was no zero Bdot case.

Haixin