Spin meeting minutes, 8/2/2006

Alfredo first showed the cold snake focusing strength (both horizontal and vertical) as function of the horizontal offset for 2T field.The interested region is with offset as -2 to -1 cm. Although the horizontal focusing is relatively flat in this region, the vertical one changes a lot (changed 3 times over a 3cm range). This effect is not included in current snake field map. Leif suggested to check the betatron tune changes with various offsets. Waldo also suggested to check both horizontal angle and offset with steps to parameterize the field map. Ideally, we would like to have the solution with exit angle zero. In reality, the bump around cold snake was tuned to minimize loss at F section, which might inadvertently do the same thing (local correction). Currently, the cold snake bump uses three power supply and is a three bump. It is suggested to Nick that he should look for a solution for a local 4-bump, which implies new backleg windings and power supply.

Nick reported the MAD calculation with various configurations (polarized proton quads, skew quads) to reach Qx 8 and Qy 9. There is no solution within the current power supply limitation. Thomas suggested to use polarized proton quads in series with vertical tune quads to push vertical tune near 9 and to move radius inward for horizontal tune close to 9, too. Leif did quick check with AGS optic control and found that it is feasible to put Qx 8.7 and Qy 9 with vertical string runs at -580A and the horizontal string runs at 440A. The radius moving outward generated -0.26 horizontal tune change last run as estimated by Keith. So this is a feasible solution.It will be our focus for this summer. We need to know if any beta wave will be generated by such a move. Since the horizontal sextupoles will be off for this setup, the dynamic aperture should not be different from moving radius outward.

Leif then showed comparison of AGS model vs Machine at injection by varying one of the bump magnet. The horizontal difference orbit are similar between model and measurement, the vertical difference orbits differed by a factor 10.There is also discrepancy between model and measurement on difference orbit with different solenoid current. Alfredo will provide the field maps for various solenoid current settings. It was realized that skew quads were not included in the model calculation. More calculation will follow.

Haixin