Spin meeting minutes, 11/1/2006

First I would like to thank Leif who leads the meeting and takes the notes.

Nick Tsoupas continued his discussion of AGS coupling at injection energy ($G\gamma$=4.5), as seen in the ORM data and modeled using MAD. He proposes we do a study with a semi-bare AGS at injection. With all known coupling turned off (skew quads, snakes) and the vertical tune pushed close enough to 9 to give a big coupling signal, repeat the horizontal ORM data taking. He will attempt to fit the resulting coupling-produced vertical equilibrium orbit data with coupling coming from rolled AGS main ring magnets. Mei suggested that this analysis is just what the ORM analysis should do for us. That analysis would have to have the option of rolling magnets of course. She says that is, or could be, one possible input for the present machinery —-Todds machinery. Leif suggested the existing ORM data taken at extraction would set some limit on the effect to be expected. (OK, there the skew quads are still on —-possibly compensating the main magnet rolls, though only in global sense — and some snake residual still exists) That data was not taken with the vertical tune very close to 9, and so the sensitivity to the coupling is not optimized.

Woody reminded us of the possible coupling source from AGS main magnet rolls. He does not expect this effect to be modeled well by assigning different roll coefficients to the (few) different magnet types. The roll problem was measured and corrected on day one so since magnet histories (coil changes etc.) are different, the correction evolution may also be different.

Fanglei gave us an update of her work modeling polarization loss going through the $G\gamma$=5 region of the acceleration cycle. She sees a strong polarization dependence on the betatron tune and spin tune trajectories. If the crossings near 5 are close together then some depolarization results. She has made the model more realistic as far at the acceleration rate going through the resonance region and the snake strengths are concerned. This is all one particle tracking without horizontal motion and synchrotron motion, while vertical motion corresponding to rms emittance 2.5 mm-mrad. Fanglei plans to now do a run with 100 particles, add synchrotron motion, and then look at horizontal motion.

Leif/Haixin