Spin meeting minutes, 1/17/2007

To find the causes of the difference between simple model (MATHCAD) and spink tracking for the 14% cold snake case, Fanglei did the spink tracking differently. She forced the spin to start from the stable spin direction at certain energies: $G\gamma = 7.5, 18.5, 33.5, 36.5$. Effectively, the residual spin coherence is removed by this spin "rematching". Not surprised, the spin tracking results are closer to the simple model, since the simple model assumes no spin coherence at all. However, which tracking is closer to the real machine remains a question.

Haixin presented the analysis on the vertical tune scan done early in the run (Feb. 3-5, 14% cold snake; May 8, 10% cold snake). First, the locations of the partial snake resonances agree reasonably well with the predictions from the partial snake strength. The size of polarization dips at the locations of the snake resonances is correlated with the orbit distortion. Based on the 0+ν tune scan for the vertical tune range 8.85-8.98, the vertical emittance is estimated to be $5.7 \pm 0.3\pi\mu$m for 10% cold snake and $6.6 \pm 0.3\pi\mu$m for 14% cold snake. The error bars come from polarization statistical errors only. It is encouraging that the two emittance values are close, even though the two scan were separated by several months. Mei questioned if we could see the 5th order resonance as indicated by only one data point, which calls for finer tune scan in the future.

Haixin