

Status of the machine studies

LIS meeting, 11/06/07

Several MDs have already been performed since the beginning of the 2007 run:

1) PS closed orbit correction by displacing main dipoles (S. Gilardoni)

- Magnets displaced: (3,19,37) for the horizontal correction and (52,70,72) for the vertical correction.
- The horizontal peak to peak and rms orbit was reduced from (17.5 mm, 4.3 mm) to (9.04 mm, 2.5 mm), and the vertical ones from (4.2 mm, 1.0 mm) to (2.9 mm, 0.65 mm).
- The PUs of the displaced magnets were asked to be measured during the technical stop on June 04 (result?).

2) SFTPRO trajectory correction in TT2-TT10 (A. Franchi)

- The vertical offset of the fifth turn (with the largest displacement) in the SPS was reduced from ~ 5 mm rms to ~ 1 mm rms.
- The next step is to measure the emittance in the SPS in order to quantify the emittance reduction.

3) Optics measurement in TT2 on the AD beam with QKE58 ON and OFF (E. Benedetto)

- The data are being analysed.
- The goal is to deduce a new optics of the TT2 line with QKE58 OFF from the determination of the Twiss parameters at the beginning of the line.

4) Study of the presumed PS to AD transfer losses (R. Steerenberg)

- The transmission loss of 10% to 20% observed during the whole year 2006 was due to a problem with the transformer FTA.TFA9013, which was solved.

5) PS slow extraction with sextupole in SS01 instead of SS03 (R. Steerenberg)

- An extraction efficiency of ~88% (compared to the 93% efficiency measured the day before the MD with the sextupole in SS03) was rapidly obtained in the morning. The MD was then stopped at 10:30 due to a vacuum leak on the ion pump feedthrough in SS24. It was decided by the OP group to go back to the SS03 sextupole during the technical stop on June 04.
- Another test should be performed after having understood whether there is a fundamental difference or not.

6) Study of the SPS BPMs in BA3 (G. Arduini)

- Measurements with a 25 ns beam seem to indicate that the BPMs in BA3 (equipped with attenuators) have smaller offsets than the others.
- The plan is now to install the same attenuators on the BPMs of BA4 and re-measure.
- These measurements will also have to be redone with the 75 ns beam.

7) Study of the effect of the energy on the SPS fast vertical instability induced by the electron cloud (G. Rumolo)

- Some signs of (which?) instabilities have been observed both at 26 and 37 GeV/c on the nominal LHC beam with 1 batch of 72 bunches for vertical chromaticities very close to zero and/or slightly negative.
- Data are being analysed.