

Status of the machine studies

APC, 06/06/08

1) Last MD of 2007: Desorption experiments at LINAC 3 in order to study the dynamic outgassing of lead ions impacting on warm targets important for LHC and LEIR operation with heavy ions (E. Mahner)

- Took place from week 46 to week 51, no beam taken during target changes and bakeouts in week 47 and week 49.
- 3 different targets were tested: stainless steel (for reference), NEG/stainless steel (activated/saturated), Au/Cu target as potentially low-outgassing collimator material.
- The ion source stability and Linac3 reliability were excellent. The following beams were delivered: Pb53+ at 4.2 MeV/u, Pb29+ at 4.2, 3.1, and 1.8 MeV/u. Intensity for Pb53+: 1.5×10^9 ions/shot (22 μ A, 600 μ s pulse length). Repetition rate: 1 shot/1.2s.
- Data analysis started but not finished.
- Next step: A new proposal for Linac3 desorption studies has been prepared.

2) Signal measurements of the new LHC-BLM installed in the BTP line, in order to understand the high level of radiation Rue Goward (S. Aumon)

- Losses with the beam NORMGPS could be seen from BLM signals in the BTP line when the beam was not injected in the line. After a re-steering of the beam in BT, the losses disappeared. The high radiation level Rue Goward seems to be due to losses on the septum in section 42 and not because of losses in the transfer line itself.
- Next step: Benchmark of the trajectory between the simulation and measurements, normally on the 22 of May 2008 => I have no news yet!

3) Beta-beating tests for the LHC (R. Tomas)

- On 02/06, the beam was absent ~ 60% of the time and unstable (PS pbs, SPS servers which needed to be rebooted many times etc.). On 05/06 no beam available (problem with the trim which caused beam aborts).
- 12 bunches (1 PSB) with ~ $1E10$ p/b were asked and we thought this is what we get but there seems to be some inconsistencies which are being followed-up.
- Measurement of normalized dispersion was accomplished. Enough data was taken to assess the error on the phase measurement. General tests of the GUI were performed.
- Next step: Measure in connection with YASP and correction.

4) Setting-up and optimization of the high-energy part of LHC25/TSTLHC25 (H. Damerou)

- This was not possible to do it in parallel on Wednesday 04/06/08 (not enough cycles in the PSB and the archives are not reliable at the moment). It was agreed with Wolfgang Hofle (who was supposed to do the setting-up of the transverse damper during the whole day) to let the PS work from 08:00 to 14:00.
- LHC25 has been optimized at nominal intensity (~ $9E12$ p/p). The high-energy longitudinal blow-up has been advanced to start shortly after transition and the coupled-bunch instability feedback has been adjusted and switched on. Bunches of nominal longitudinal emittance are ejected with an average length around 3.6ns. This continues to be the case - without touching the synchro or any other parameter - when only one Booster ring is injected.
- LHC25 is longitudinally ready for the scrubbing run.

5) Setting-up of the SPS transverse dampers (W. Hofle)

- This work was delayed because the PUs used (204 to 207) are shared with BI and some (planned) modifications were done, but Wolfgang was not informed. Furthermore it seems that there are even more important pbs. Interventions on Monday (during the technical stop) might be required.

6) Controlled transverse emittance blow-up in the SPS with transverse damper (D. Manglunki)

- We are not stuck because one cannot measure the transverse emittances with the BWS (still some work to be done on the new application). This is followed-up by Elliott Mc Crory and Ana Guerrero.

7) Status of the fast analog signals in the SPS (I. Kozsar)

- The timings are now declared as follows:
 - **SX.C-TREV-OASIS** => By setting the delay, we set the moment in the cycle when the triggering starts.
 - **SX.TREV-INTERV** => Setting the delay, we set the "distance" in TREV between triggers.

- **SX.N-INTERV** => Setting the delay, we set the number of triggers (the outputs of the previous counter is used as clock for this one).
- Between the SX.C-TREV-OASIS and the first trigger SX.TREV-INTERV there will be a "distance" equal to the one between triggers.
- The TREV has to be fed into the external clock 1 of the CTRV in cfv-ba3-saos03, SX.C-TREV-OASIS into the external start 1 and SX.N-INTERV into the external start 2. Still to be checked...

- Plan MDs for next week 24:

- SPS scrubbing run next week 24 + (Calibration of the) LHC BLM signal at the LHC collimator at the end of the scrubbing run => Only possible if OP confirms that the scrubbing of the SPS is finished/sufficient.
- Study of the radiation levels on top of the TDC2 tunnel in the North Area vs losses at the TT20 splitters (on TH 12/06 from ~ 09:00 to 15:00) => Confirmed by the Physics coordinator on 05/06/08.

- MDs for weeks 25 and 26 => Will be discussed at the 2nd MD planning meeting on Wednesday 11/06 in room 874-1-011 between 11:00 and 12:00:

- It is planned at the moment (05/06/08) to switch to a new SPS supercycle (SFT_LONG-3CNGS-LHCPILOT-MD_V1) on Monday 16/06/08. No SPS MDs are planned for both Monday and Tuesday.
- Wednesday 18/06/08 should be devoted to SPS longitudinal impedance measurements on the MD cycle.
- Thursday 19/06/08 and Friday 20/06/08 should be devoted to SPS transverse (and again longitudinal if needed) impedance measurements on the MD cycle.