Performance Reach of LHC Beams in the PSB (B. Mikulec)

- Emittance/Intensity along the injection chain:
  - LHC Ultimate beam achievable if blow-up along injection chain less as 20%.
  - LBS/LBE will be recalibrated to have more accurate value of the L2 emittance m (about 1.2 um), however it seems that there is no emittance blow up in PSB.
  - The curve of intensity Vs emittance depends on the longitudinal emittance.
- PSB
  - Possible discrepancy between the 4 rings (as beginning 2012) not to be forgotten. In case 1 ring has low performance, the scheme 3+3 can be still be used.
  - Injection optics of the PSB can be already studied.
- L4 needed for HL-LIU goals:
  - No MD can be done yet, except for Tune Shift with the high intensity at 160 MeV (see A. Molodozhentsev).

Space charge studies at 160MeV in the CERN PS Booster (A.Molodozhentsev)

- PTC-ORBIT benchmarking:
  - Linear coupling: Simulation with random error on the Quads gradient did not show excitement of the linear coupling.
  - The Quads gradient errors in the machine can be estimated measuring the beta beating using the orbit corrector and PUs. A Tool developed for LHC is now being deployed for the injectors.
- Extreme Space Charge at 160 MeV
  - First MD with 'extreme' space charge detuning at the 160MeV energy indicates promising possibility to reach the space charge detuning of (V: -0.4) with limited emittance blow-up and acceptable particle losses.
- Simulation could provide a threshold for the minimal L4 emittance
- Different Painting schemes are under study
- Only RMS Emittance were studied from the simulation but it is possible to study the halo too.

PSB RF & Transverse Feedback Aspects (A. Findlay)

- Transverse Damper
  - For injection and instabilities oscillations.
  - The beam stability with higher intensity beam with the parameters of the new Damper has to be study further. Transverse Damper system designed for a bandwidth of 20MHz, the power amplifiers have a range of 10kHz to 100MHz.
- Finemet Cavity
  - when a decision can be made ?
- Digital RF control
  - would strongly benefit from MDs in 2013