MINUTES

LIU-SPS BD WG  
MEETING No. 07/19

19 September 2019

**Present:** A. Lasheen, M. Schwarz, I. Karpov, A. Farricker, H. Bartosik, T. Argyropoulos, G. Papotti, V. Kain, R. Calaga, H. Damerau

# Matter Arising and Follow-up of Actions

* **~~N. Nasresfahani~~**~~: Study the possibility to use the new coupler design to replace all existing 630 MHz HOM couplers~~
* **M. Schwarz**: Include the momentum acceptance limitation in simulations.
* **M. Schwarz**: Is it possible to understand if the instability observed with the radial-loop is real or only related to numerical problems?
* For the slip-stacking cycle, determined the aperture needed for the collimation system.
* A list of the key moments in the various cycles (slip-stacking!) is necessary to adjust the design of the collimation system.
* Measurements of the beta beating to include optics errors in simulation of the collimation system.
* Check the impedance of the new collimation system.
* **M. Schwarz**: Quadrupole oscillations are observed at flat bottom with the feedforward activated. Study where this is coming from.
* **A. Farricker**: Check with C. Zannini for the discrepancy in MKEs impedance.
* **C.** **Vollinger:** Check how many cross section step-like changes are in the SPS
* **M. Schwarz:** Organize meeting to discuss issues with bunch length measurements
* **T. Argyropoulos:** Include intensity effects in emittance calculations

**New:**

# General News

---

# Presentations

## **SPS-LHC Energy Matching – V. Kain**

The LHC runs with higher voltage to reduce capture losses and allow for energy mismatch between SPS and LHC. This might not be possible for HL-LHC due to power limitations.

* **Aaron:** Are the different offsets of the two beams due to the different transferlines?
  + **Hannes:** They are due to the different orbits in the LHC.

The source of the energy mismatch is currently not known and investigations are planned during 2021. It is proposed to measure the energy mismatch on a fill-by-fill basis with the 12b beam and feedforward correct.

* **Hannes:** You correct with 12 bunches, and then inject ‘blindly’?
  + **Verena:** Yes, but we need a test phase first!
* **Rama:** Can one inject 12 bunches with a slope in offset?
  + **Hannes:** You already have that information available.

YASP already has this functionality using the orbit correctors. These corrections would have to be reverted before the start of the ramp, which is presently not implemented.

## **Effects of different feedback models on instability threshold – M. Schwarz**

Previous multi-batch simulations at flat top used simple reduction of Rshunt to model the feedback. Using a more ‘sophisticated’ model has more impedance around 200 MHz, but yields a much larger threshold.

* **Ivan**: In your impedance reduction factor, do you include filters at frev?
  + **Markus**: I use the ‘envelope’, because BLonD does not have a frequency resolution of frev, which is needed when including the filters.

This could be due to a different bunch-by-bunch frequency spread due to the different induced voltage.

# Next Meeting 24 October 2019

Minutes written by M. Schwarz