# Summary of the LIU-PS Meeting 93

Held on Tuesday 28th April 2015

***Agenda (https://indico.cern.ch/event/390207/)***

1. *Approval of Minutes, follow-up ot the previous meeting (S. Gilardoni)*
2. *Round table (all participants)*
3. *Simulation on the EC detector in the MU98 (A. Romano)*
4. *An update on the ecloud monitor in the PS (M. Taborelli)*
5. *AOB*

PRESENT: S. Gilardoni, H. Damerau, G. Sterbini, S. Mataguez, G. Rumolo, G. Iadarola, M. Taborelli, A. Romano.

## 1. Approval of Minutes and follow-up of the previous meeting

The minutes of the last meeting were approved.

## 2. Round table (all participants)

**S. Gilardoni** informed that the Medium Term Plan was approved. For the PS-LIU upgrade there was no impact. Due to the large number of installations presently planned during the LS2 all working groups should try to schedule their installation earlier in the project.

The kicker specifications have been approved whilst the injection vacuum chamber specification are in preparation.

A fellow position for the impedance studies was approved and **M. Migliorati** visited CERN last week. He applied as scientific associated for 2016.

The INFN of Bologna signed an agreement on IT resources (a first document was circulated).

**J. Storey** will continue the work on the BGI detector. **S. Gilardoni** if he had already met **D. Bodart** and **S. Pittet**. **J. Storey** answered that he already met **D. Bodart**.

**S. Mataguez** informed that two new Wall Current Monitor will be installed in SS03 during the TS2 (15 June).

**H. Damerau** informed that **D. Perrelet** implemented the one-turn feedback on all cavities and test measurement are ongoing. Preliminary tests are also started for the Finemet cavity.

**S. Gilardoni** will contact **A. Blas** to know the delivery date of the new firmware of the PS TFB.

## 3. Simulation on the EC detector in the MU98 (A. Romano)

**A. Romano** presented an update on the simulation of the EC detector in the MU98 (Annex 1)

On of the EC detector in MU98 is a standard electron pick-up (PU). The PU is made by a ceramic block shielded from the main chamber with a 0.2 mm thick stainless steel sheet consisting of a series of holes (1 mm diameter and 2 mm pitch). The detector is mounted in the inner side of the beam pipe (on the bottom); the distance between the end of the pick-up and the y-axis of vacuum chamber is 1.2 cm.

A reliable model both of the PS vacuum chamber and of the EC detector was developed and implemented in the PyECLOUD.

Numerical simulations were carried out to quantify the expected signal at the detector under different beam conditions:

- Beam radial position between -3 and 3 cm
- Bunch length between 4 and 16 ns
- Bunch population between 1.0 and 2.5e11 ppb.

The results of these studies show that

- the electron flux through the holes is strongly affected by the beam displacement; it becomes acceptable only when the beam gets closer to the region of the detector (2-3 cm of variation of the Mean Radial Position)
- the multipacting threshold decreases when the bunch length decreases and when the bunch intensity increases

There was a discussion on how vary the radial position on the inner side by 2-3 cm. A local bump with the orbit corrector in SS5, SS18 and SS60 seems the best option. The radial steering by chancing the revolution frequency would trip the cavity at 40 MHz. **H. Damerau** suggested also to investigate the possibility to vary the magnetic field in order to vary the radial position.

There was a discussion about the low current produce by the EC produced electron. **G. Iadarola** pointed out that the expected current is significantly lower that the one observed in SS98 due to the magnetic field. **M. Taborelli** commented that there are commercial devices able to detect 100 nA in 1 μs integration time but are not radiation resistant. **S. Gilardoni** suggested the possibility to protect the electronics in the concrete basement of the tunnel. A similar approach is currently adopted by **J. Belleman** with the electronics of some PU.

## 4. An update on the EC monitor in the PS (M. Taborelli)

**M. Taborelli** presented an update on the EC monitor in the PS (Annex 2).

The e-cloud signal on the PU has presently a high noise component induced by the direct beam signals. After EM simulation by B. Salvant it turned out that the front grid connection contact has to be modified. This implies that the PU has to be removed (venting of the machine is needed), modified and re-installed. **G. Sterbini** asked if a spare is available or could be build in time for the TS2. **M. Taborelli**

answered negatively. **S. Gilardoni** suggested to take out the PU during the COLDEX intervention in the SPS, to modify it and to put it back during the next TS2. This implies 24 h stop of the PS also for the COLDEX intervention (to be confirmed if possible).

Concerning the photon detector, the spikes observed were produced by beam losses. After discussion with the BI colleague **E. Piselli** it turned out that a possible solution is to shield the detector with a lead box. **H. Neupert** was added to the PS Access Request List to remove the photo detector for modification.

## 5. AOB

There were no AOB.

**Next Meeting: Tuesday 12th May**

*Minutes reported by G. Sterbini the 10th May*