

**Minutes of the meeting of the SPS Upgrade Study Team
on 21 January 2010**

Present: J. Bauche, T. Bohl, S. Calatroni, F. Caspers, P. Chigiato, E. Ciapala, K. Cornelis, S. Federmann, R. Garoby, E. Montesinos, G. Rumolo, B. Salvant, E. Shaposhnikova, M. Taborelli, C. Yin Vallgren

Excused: G. Arduini, E. Metral

• **Present situation for SPS installation for e-cloud. - M. Taborelli**

The SPS e-cloud installation in 2010:

(1) ECM region: two (new?) StSt liners with two ion pumps and vacuum gauges between them, old aC-Zr and CNe-13 liners.

(2) 2 coated and 2 uncoated magnets

(3) Microwave diagnostics: buttons in the most upstream position (next to the uncoated magnet); loops everywhere else.

All samples (from MBBs 040, 085 and 096) extracted from magnet MBB040 (stored in pumping port from March 2009) show increase of SEY to 1.3 (from initial 1.0) after venting inside machine and 2 days in air (Al foil). Relatively high radiation level ($4 \mu\text{S}/\text{hour}$).

Sample in C-magnet was also exposed to air during the shutdown work.

• **SPS RF upgrade for ultimate LHC intensity - E. Shaposhnikova**

More voltage is required at 450 GeV in the SPS to transfer to the LHC the beams of larger emittance which will be necessary for stability of high intensity beams. The existing two 5-section cavities can provide much less voltage at ultimate LHC current and become practically useless with a power limitation of 1 MW/cavity. The proposed solution is to rearrange the existing 4 cavities with 4 and 5 sections and the 2 spare sections into 6 cavities of shorter length with 2 extra power plants. This will reduce the beam loading per cavity and the total beam coupling impedance (by 20%) and increase the available voltage (the maximum value depending on beam current and available power). The corresponding total power increase is 50%. 30% gain in voltage is expected for fast acceleration (CNGS/FT cycle) of nominal current with a power limit of 750 kW/cavity (full ring regime).

- The next meeting will be on **25 February 2010** at 15:30.

Preliminary agenda:

Recent results on coatings - M. Taborelli

E-cloud estimate from mw measurements - S. Federmann

MD plans for 2010 - E. Shaposhnikova

Elena Shaposhnikova, 23.02.2010