

**Minutes of the 23th meeting of the SPS Upgrade Study Team
on 27 January 2009**

Present: G. Arduini, J. Bauche, S. Calatroni, F. Caspers, P. Chiggiato, K. Cornelis, P. Costa Pinto, R. Garoby, N. Gilbert, G. Rumolo, E. Shaposhnikova, C. Yin Vallgren, G. Vandoni

Excused: E. Mahner

• **Progress report on coatings for SPSU - S. Calatroni et al.**

For 2009 tests places for 4 liners are available in the SPS experimental set-up. The proposal is to fill them with

- (1) old (2008) liner with a-C coating,
- (2) new StSt for reference,
- (3) new a-C on rough (Zr) surface,
- (4) new a-C on getter (NEG) underlayer.

The installation should be finished before **March 20**, when the tunnel is closed. There is no scrubbing run scheduled, but most probably the first SPS MD in W25 (15-17 June) will be with high intensity nominal LHC beam.

A new sample holder for the C-magnet will also be available for 2009 tests.

Measurements of a-C coatings on Zr surface show an increase in SEY (from 0.95 to 1.15) after one week air exposure for 3 out of 4 samples. The SEY for one sample practically did not change. The coatings were made using different pressure and power settings during sputtering (which change growth rate and temperature). The correlation with layer characteristics is under study.

Tests were conducted to see the effect of H_2 on Carbon film. The pumping properties of Ti were used to reduce the H_2 quantity in the coating system. No ageing effect was seen for samples with continuous Ti underlayer. 50 samples were produced in 2 weeks and need to be analysed.

The MBB coating system has been tested in the solenoid field with correct its (ExB) configuration. Simulations were done to optimise the setting. In principle only a 40 mm strip is important for e-cloud build-up (as follows from simulations of Giovanni) and must be coated.

Fritz will measure the dielectric constant of NEG coating which needs to be very large (10000-100000) to explain a high impedance reported in some publications.

The coating bench in bld. 867 is practically ready. Coating of the liner (which is not yet ready) is planned in W7.

Only visual (color, peel-off) tests of coating quality can be performed.

Three magnets must be ready on **March 10** to allow for transportation and installation in the tunnel.

• **Carbon coating. Status of SPS installation - G. Vandoni and E. Mahner**

The version of the SPS installation presented, which consists of

- (1) one pair of coated MBB magnets and
- (2) one pair of coated and un-coated MBB magnets

is identical to the one proposed at the last SPSU meeting with, in addition, the possibility of making

μw measurements in the first set as well. This will give more flexibility in case only two magnets can be coated before the deadline. However it does require modification of the pumping ports and shielding. Only one set of μw measurement instrumentation (wave generator and 2 spectrum analyzers) is available, it however can be connected to any of the two set-ups (two MBB magnets) from BA5.

A new sector valve will be installed to isolate H/V BIMP's which require bake-out (2 weeks) after air exposure.

The updated planning of the shutdown work in the sector 5 of the SPS was presented. This planning for the SPS shutdown work was approved by APC meeting on 16.01.2009.

- **Subjects for the next SPSU meetings**

A non-exclusive list of subjects to be presented and discussed in 2009 at the SPSU meetings was established. It includes upgrades of

- The SPS vacuum system (in view of coated magnets)
- The 200 MHz RF system (power and cavities)
- Transverse feedback (for high intensity)
- Instrumentation (dynamic range, heating)

and the needs for

- A search for the sources of the broad-band transverse and narrow-band longitudinal impedances
- A collimation system

- The next meeting will be on **27 January 2009** at 15:30 in the JBA room (bld. 864).

Preliminary agenda:

Progress report on coating system - S. Calatroni

Measured characteristics of different coatings - M. Taborelli

SPS installations and shutdown work - G. Vandoni, E. Mahner, N. Gilbert

News on measurements of NEG impedance - D. Seebacher/ F. Caspers

Elena Shaposhnikova, 04.02.2009