# Meeting of LIU SPS-BD WG on 26.05.2016

Present

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Agenda

1. Follow up of soft clamps production and testing - T. Kaltenbacher
2. Impact of remanent fields on SPS chromaticity - H. Bartosik

Foreword

* Summary of the vacuum flanges short-circuit MD.
	+ Technical stop shorten -> may not be possible to do it in 8 hours.
	+ Issues of the short-circuit discussed (effects of grounding loop …).

**1 – Follow up of soft clamps production and testing – T. Kaltenbacher**

* Open questions about installation of short-circuit after visit in the tunnel.
	+ Issues to add conducting clamps on insulating layers on the beam pipe.
		- Solution proposed (José) -> cut one strip of the insulation next to the VF.
	+ Left over metal bands from LEP -> remove it?
		- J. A. Ferreira Somoza: Protection for synchrotron radiation when the SPS was accelerating electrons.
		- No risk to remove them from a vacuum point of view.
		- V. Kain: crosscheck with Karel by safety.
	+ Isolating supports next to the VF, problem to short circuit.
		- Longer loop would be a solution (easier installation).
	+ Wide copper braid (short-circuit) touch the weld.
		- Use thinner braid and thinner clamp.
* Check the fingers in vacuum flanges. If they do not work/are broken, should be modified (high impedance).
* B. Goddard: Technical stop may be too short (8h), use this time to have a better understanding of the problem, take systematic HD pictures of all the locations. First have an overview of the issues and do the MD in September.
* Test of short-circuits (remove QF SSS earth connection?).
	+ Deployment long and difficult, cable tie system has to be modified.
	+ Need measurement of the current flowing through the clamps to take a decision about short-circuits.
	+ Cannot do the measurement by hand in the tunnel but eventually could be done remotely (see with magnet team).
	+ If we can prove that the clamps are really conducting we can then temporarily remove the ground in some area.
* 6th of June MD.
	+ Measure the current in the earth-loops.
	+ See if fingers installed and functional (shielded pumping ports).
	+ Go and remove metal band and insulation (VSC).

**2 – Impact of remanent fields on SPS chromaticity – H. Bartosik**

* Follow the last presentation (Effects of remanent fields).
* Errors in the magnets were estimated from a parametric model in MAD and time measurement as a function of radial position.
* Problems to build a model for both optics at the same time, we think that octupolar and sextupolar component missing are coming from the remanent fields.
* Measurement setup: 2 cycles.
	+ One ramp to 400 GeV, no beam.
	+ One FB cycle with beam.
* Changing the sextupoles in the 400 GeV cycle -> direct impact on the next cycle (unstable).
* Huge effects of the remanent field in the sextupoles (especially in the vertical plane).
* Also remanent field in the octupoles.
	+ Simple de-Gauss on the magnet -> important effect on the second order chromaticity.
	+ Optimization of this de-gauss step in operation foreseen (Full de-gauss cycle impossible on a normal basis in operation, 50 A seems already a good compromise).
* Remanent field effects experimentally confirmed.
* Better knowledge will lead to better control of the chromaticity (better control of losses).

Actions

* Impossible to use the beam dump in the SPS for the moment, maybe till the end of the year. MDs on instability threshold, 800 MHz etc… cannot be done.
	+ Stay at injection energy (FB).
		- Synchrotron frequency shift (25GeV).
		- Head-tail instability.
		- Measurements of chromaticity/tune.
		- Measurements of the tune shift (probe impedance) (B. Salvant).
		- TMCI.
		- Longitudinal instabilities Q26 FB.
* Alex: 1 Ohm, single bunch, instability threshold simulations.

Minutes written by A. Lasheen and J. Repond