

Minutes of the SPL steering group

meeting no. 4

date: 7 December 2008

present: E. Ciapala, R. Garoby, F. Gerigk, R. Losito, V. Parma, M. Vretenar, W. Weingarten

Agenda

1. General news and facts
2. Frequency choice: 704 or 1408 MHz
3. Cryo-modules
4. Cavities
6. Next meeting

1. General news and facts

- **FP7:** 2 options (704 and 1408 MHz) have been prepared by IN2P3 for submission to Brussels. However, after Roy Aleksans doubts about the credibility of submitting a bid with 2 options only the 704 MHz baseline option will be submitted. It should not be a problem to change the frequency and the type of cavity later on (at least until September 2008).
- **ESS-S:** there was a meeting [↗](#) with the ESS-Scandinavia project team at CERN. They have no accelerator expertise yet and use the last "official" ESS design, which is in the last ESS technical design report, based on a beam-funnelling at 20 MeV, and a frequency choice of 280, 560, 1120 MHz. They seem very interested to collaborate with CERN and they also seem to have R&D money. Further talks are likely to be held in the future to see how far the accelerator specs can be unified and to work on possible collaboration subjects. A final decision for the ESS site is expected for autumn 2008. Apart from the Swedish site in Lundt, there is also Hungary and the Basque country in Spain, who are interested to host ESS.
- **SPL gradient:** R. Garoby spoke with Guillaume Olry who expressed his concern about the choice of gradients for the 704 MHz SPL. In his opinion the 19/25 MV/m are very challenging indeed, especially without having constructed a sufficient number of prototypes to get good statistics.
- **HOMs:** F. Gerigk reported that M. Schuh, a doctoral student will start in April to work on the subject of HOMs. His home university is Heidelberg and he will be supervised by C. Welsch at Heidelberg and F. Gerigk at CERN.

2. Frequency choice: 704 or 1408 MHz

- **O. Napoly** proposed to raise the issue in the next meeting of the TTC (?) (Tesla Technical Committee?), where he is a member. He wants to get their reaction on issues like synergies, tooling costs, etc. The meeting takes place in mid-January. R. Garoby will contact the chairman of this committee (Maury Tigner) before the meeting.
- **coupler:** from Sergey Belomestnykh we learned that their modified TTF coupler is capable of handling up to 75 kW CW (they were tested up to 61 kW and should support up to 75). Since no major design change was done, the original peak power of 1.5 MW should still be valid. (after H. Padamsee was not at the same conference that S. Calatroni was visiting last week in India, S. Calatroni asked F. Gerigk to contact someone at Cornell for this information).
- **klystrons:** Thoshiba answered a request by F. Gerigk that they are interested in the development of 1408 MHz klystrons. They estimate an average power of 250 to 500 kW and they could use single- or multi-beam technology. Multi-beam klystrons will require more R&D effort on their side, the single

beam klystron should be easier. The MBK at 1300 MHz, which they delivered to DESY can deliver 150 kW average power (10 MW peak).

3. Cryo-modules

- **manpower:** a detailed man-power plan was handed to R. Garoby by V. Parma. The needed number exceed the white paper allocations and R. Garoby will discuss with V. Parma group leader (L. Rossi).
- **cryogenics:** the cryogenics department is being re-organised right now
- **IN2P3:** V. Parma had feedback from the IN2P3 design office: they are keen to get engaged with the SPL cryo-modules. Manpower could be available from the end of 2008 onwards. A. Müller is prepared to consider this work. It could become an "in-kind" contribution from France. V. Parma will speak directly with A. Müller, probably during his visit at IN2P3 end of January.

4. Cavities

- **construction at CERN:** R. Losito mentioned that the people in TS who were involved in the construction of the LEP and LHC cavities are still at CERN and could be mobilised for the SPL. R. Garoby will discuss with TS before Christmas.
- **Nb sputtered cavities:** R. Losito said that good gradients can be achieved but the Q is 2 orders of magnitude lower than for bulk niobium cavities. This seems too low for operation. There is a new technique where magnetron sputtering is used to cover flat Nb sheets with a layer of Niobium. Then spinning is used to form the cavities. This seems very promising in terms of cost and performance but a bit R&D money must be invested. The chance of success was rated with 10-20%. Perhaps one can try the technique for the construction of LHC spare cavities.

[link to all open actions and closed actions](#)

6. Next meeting

will take place in 2008, to be announced

-- FrankGerigk - 26 Nov 2007

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