March 9, 1998
/tex/projects/spectro/mtg10.tex

LEP SPECTROMETER PROJECT

Summary Notes of the 10^{th} meeting held on 18 February 1998

Present: C. Bovet, E. Bravin, W. Coosemans, D. Cornuet, B. Dehning, G. De Rijk, R. Genand, M. Hildreth, N. Hilleret, W. Kalbreier, J. Montes, G. Mugnai, A. Müller, S. Myers (chairman), M. Placidi, F. Sonnemann, E. Torrence, L. Vos

Excused: Y. Muttoni, R. Perret, J. Poole, P. Wells

09:01 - Comments to Summary Notes of previous meeting - None.

09:03 - Project status - The following points were covered:

1. **Production** - B. Dehning gave a status of the production for the several hardware components. Production of the BPM-Absorber modules is **on schedule**. Some modifications to the holders of the wire sensors will be implemented soon after the installation of the modules (Y. Muttoni will be a bit more free...).
   N. Hilleret asked to know, at the next meeting, the availability of the hardware for installation (**noted**).
2. **Instrumentation** - Talking about Bergoz's PU electronics B. Dehning pointed out that signal cables might have critical temperature coefficients. This will require double housing for readout electronics. An initial installation in PM33 ($\sim$200m far away) for adjustments with machine running will be followed by a final installation in a shielded lead box close to the dipole.
   Going through a slightly revisited instrumentation list additional items were identified as **Fluxgate magnetometer** operating in the $2 \cdot 10^3 \div 2 \cdot 10^5$ nT range to monitor stray fields (and their time variations) along the straights each side of the "known" dipole. Temperature monitoring probes and BPM water cooling were also discussed. Final situation and expenditure implications will be accounted for at next meeting.

09:35 - DAQ - E. Torrence presented his proposal for the front end DAQ based on DVM. A multiplexed Keithley 2001 DVM should handle information from BPM, wires and temperature probes and GPIB interfaced to a VME crate used for NMRs and Flux-Loop (see slides for details). The 1 Hz logging frequency of the several data would produce a volume of about 35Mb/day (1Gb/mth) loggable as a Hbook N-tuple. The proposed DVM features a 7 ppm/day (18 ppm/90 days) precision when used at $(23 \pm 1)^\circ$C.
A cost estimate for DAQ will also be presented at the next meeting. **B. Dehning**

09:50 - MBI schedule - G. De Rijk reported on progress in the production of the MBI iron dipole. Steel has been ordered (Cockerill) and it already looks like there will be some delay in the delivery to Tesla Company which will build the yoke. Adding one month margin to the previously announced schedule would mean having the magnet core at CERN by end September. The complete magnet (coils, cooling etc.) might be ready end October for magnetic measurements.
Construction schedule to be followed and reported on at next meeting. **G. De Rijk**

10:00 - Magnetic mapping - D. Cornuet gave a detailed outlook of the procedures envisaged for the mapping. In short, a set of two Hall- and one NMR-probes is driven along the beam path all along the dipole length by a motorised trolley travelling on a marble reference block. Hall probes are needed to measure the end fields as NMRs do not work with field gradients. Two reference NMR are also positioned in the lower pole outside the line of measurement.
Concern was expressed about the reproducibility, at the 10^{-4} level, of measurements performed in a place (ISR tunnel) different from the final location (LEP tunnel) without repeating some of them with unavoidable increase in the measuring time. Disturbing effects can be individuated in the transportation and in the possibly different magnetic environments (but there might be others).
An *on situ* measuring programme, though involving more constraints, would be the ideal choice. A brainstorming meeting will be organised to define the philosophy and to evaluate the needs and the volume of the measurements. **W. Kalbreier**

10:20 - Planning - A tentative long term schedule has been drawn for the production of the MBI dipole and the mapping campaign.

1. magnet production should take till **end September '98**;
2. dipole ready for measurements by **end October '98**;
3. magnetic mapping over **three months** $\Rightarrow$ **end January '99**;
4. margin for unforeseen: **February '99**;
5. installation in **March '99** i.e. about one month before start up.

10:30 - AOB - Several points were discussed briefly.

1. **Orbit correctors for beam steering in the centre of PUs** - Following Jorg's presentation at the 12 December '97 meeting requiring an additional corrector for angle- and position-independent horizontal steering, it was decided to **connect the existing CHA at QF21.L3 to its PC**. No intervention is needed on the vacuum chamber.
   The layout modification has been notified to **Y. Marti**. **R. Genand**
2. **Electronics shielding in H.C.332** - G. Mugnai proposed a revised solution for the shielding of the electronics close to the instrumentation. The ≥ 6 tons lead box would be no more cantilevered across the magnet but supported behind it (see slides). This solution, opposed to the alternative of installing the shielded electronics on the floor underneath the dipole, was adopted, with silent resignation, as *"it provides easier access for tuning the several parameters for BPMS, wires, NMRs etc."* [1].
3. **Project Report** - M. Placidi presented a tentative list of subjects and authors for the Report. This will be finalised (changes/additions) at the next meeting. **M. Placidi**
4. **Change of dates for the next meetings** - To cope with people and rooms availability **the next meetings will be held on alternate Thursdays at 10:30 in JBA Room** (booked).

10:50 - End of meeting

[1] Comments and choices made in the meeting are not necessarily shared by the writer...should they be?

The **NEXT MEETING** will be held on

THURSDAY, March 05th 1998 at 10:30
in JBA ROOM 864/2-B14

NOTE NEW DATE and TIME !!!

Tentative AGENDA (to be confirmed later)

- Comments on Notes of previous meeting
- Follow up of production/installation — Y. Muttoni
- Availability of hardware for installation — B. Dehning
- Revisited plans for mapping campaign — G. Mugnai
- Instrumentation budget — B. Dehning
- Project Report: final list of chapters & authors — M. Placidi
- AOB

M. Placidi