

MACHINES AND AREAS COMMITTEESummary of meeting No. 44 - March 5, 1975Present

O. Barbalat (Secretary), G. Baribaud, D. Bloess, D. Dekkers,
B. Frammery, M. Georgijevic, C. Germain, W. Hardt, P. Heymans,
L. Hoffmann, B. Kuiper, G.L. Munday (Chairman), G. Nassibian,
G. Plass, J.P. Potier, K.H. Reich, Ch. Rufer

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1. Pulse to Pulse Modulation (PPM) of the PSB Beam

A draft project paper prepared by the BR Group had been circulated (MPS/BR/Int. 75-2). Some of the proposed facilities required additional computer power (more IBM memory or use of a PPD-11). In order to avoid taking now decisions which might not fit in the overall scheme for the new control system, the operation requirements for 1975-1976 have been reviewed by D. Dekkers (see Appendix 1). Further facilities are thought to be necessary from 1977 onwards.

The results of discussions between OP, MU and the co-ordinator, made before the meeting, lead to the following assumptions which were accepted (with some reservations).

- i) During the coming 2 years, only two basic intensity modes must be provided on an alternate pulse to pulse basis, namely :
 - 10^{13} p/p or 10^{12} p/p for the SPS,
 - 2.5 to 4 or 5 10^{12} p/p for ISR and 25 GeV physics.
The ISR and 25 GeV physics settings can be assumed to be roughly similar.
- ii) The intensity variation between the two settings will not be more than 4 or 5. (In case of interruption of East Hall operation, for the South Hall alone, one would use only one or two PSB rings or dump part of the beam on D2 at the cost of some time structure at the revolution frequency on the South Hall beams). This variation can be achieved by adjusting the number of turns injected in the Booster. Under these conditions, only a limited number of parameters need to be changed and this could be done without additional computer capacity and a limited software effort (use of local memories for 2 settings of the Magnani damping, use of GFA's to release some Varian 620 channels, use of gates on oscilloscopes and STAR displays).

This only covers the operation needs and one will have to accept that all ME sessions performed in parallel with physics operation comply with this limitation and use one of the two available settings.

The implications of this policy are also that other proposed modulation techniques (amplitude shaving, RF bucket reduction, sieve) will not be required in this first phase. As to the sieve in particular, it was agreed to continue the design but without holding up other more urgent projects (internal dump, septum dipoles to replace bump coils, new linac) which are studied by the same person in the ML design office.

Detailed computer implications will be analysed in May/June (P. Heymans, J.P. Potier, W. Remmer) in particular the continued use of an enlarged IBM 1800 versus immediate use of a PDP-11.

The project was approved; however since it extends over 4 years it was agreed to review by mid 1976 both its contents and the allocated resources for 1977/78 in the light of the operational experience and of the better defined computer facilities.

A project for pulsing the PSB magnets in a supercycle will be presented soon.

2. Supercycles and Pulse to Pulse Modulation in the PS

The various aspects of these problems have already been discussed and approved technically by the MAC :

- "Linac-PSB-PS timing system - Present status - Proposals for the future", MPS/OP/Note 74-21 by J.P. Riunaud (MAC No. 28)
- "Modifications liées à la modulation d'intensité dans le PSB et le PS", MPS/OP/Note 74-28 by J.P. Potier (PS part) (MAC No. 35)
- "Caractéristiques et principes de l'unité de programmation", MPS/OP/Note 74-18 by J. Boillot (no formal approval but implied in the Computer expansion project at the time).

At the time of approval, it was assumed that the expenditures would be covered either by the PS Computer Expansion project (PS 3003) or by the current budgets. It appears however in the present context that these items should be grouped together in a formal project covering the 1975/76 period. J.P. Potier will be the project leader, he will also coordinate the Booster part in collaboration with K.H. Reich, especially the MCR and operational aspects.

3. Next Meetings

- March 12 : - Operation in 1974
 - Spare parts policy
 - Beam dumping
- April 9 : - Planning for SPS running-in.

O. Barbalat

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DATES	MODIFICATIONS TECHNIQUES	SPS	I _p	ISR	I _p	25 G.eV	I
JUIN 75	STOP HALL OUEST	MD QUALITE		AMELIORATION		UTILISATION ZONES E, SE, S, W	2.5 · 10 ¹¹ (E, SE, W, S)
JUILLET 75	PROGRAMMATION POINT DE FONCTIONNEMENT OPERATIONNELLE	DE FAISCEAU,		EMITTANCES			5 à 6 · 10 ¹¹ (GGM)
AOUT 75	STOP GGM	INTENSITE	2 · 10 ¹²	VERTICALES	2 · 10 ¹²		
SEPTEMBRE 75		ET	A		3 · 10 ¹²		
OCTOBRE 75	INSTALLATION CT, CIBLE DUMP INT (SI POSSIBLE)	TESTS CT	10 ¹³				
JANVIER 76	SUPERCYCLE + TIMING + PROGRAMMATION PFW (SOLUTION PROVISoire)						
FEBRIER 76	ISR (BEAM LOADING COMPENSATION) INSTALLATION LIGNE DUMP D2						
MAI 76	CT PAR ORDINATEUR	RUNNING IN SPS	10 ¹²	MEILLEURE UTILISATION PAR ISR DE DENSITE LONGITUDINALE	3 · 10 ¹²	UTILISATION ZONES E, SE, S	3 · 10 ¹²
DECEMBRE 76			A		A		A
			10 ¹³		5 · 10 ¹²		5 · 10 ¹²
JANVIER 77	CT : SETTINGS AUTOMATIQUES						
FEBRIER 77	NOUVEAU SEPTUM 62	OPERATION SPS					

REFERENCES

- 1) MPS / DL / Min 74-45 - SUMMARY OF MEETING, N°2 "PROTONS FOR PREVESIN" - O. BARBALAT
- 2) MINUTES OF THE ISR/PS MEETING ON 29.10.74 DATED 6.11.74
- 3) MPS / MU - NOTE / EP 73-12 / REV : EAST AREA TRANSFORMATION - L. HOFFMANN
- 4) CERN / MPS / DL 74-10 : THE PS AS A PHYSICS TOOL AND AS AN INJECTOR - THE PS STAFF
- 5) MPS / DL / NOTE 75-3 REMARQUES A PROPOS DU CHOIX DU SYSTEME DE PFW : IMPLICATIONS POUR L'AVENIR DU PS - MST
- 6) DISCUSSIONS AVEC G.L. MUNDAY, L. HOFFMANN, P. WAHL