



19 September, 1962

CM-P00063849

SUMMARY OF THE DISCUSSION AT THE
ELECTRONIC EXPERIMENTS COMMITTEE MEETING

18 September, 1962

PRESENT : P. PREISWERK Chairman E.E.C
J.M. CASSELS
G. von DARDEL
C. RUBBIA
A.M. WETHERELL
W.O. LOCK

The Electronic Experiments Committee met on 18 September, 1962, to discuss the status and future programme of counter experiments at the PS.

Period II (16th April, 1962 - 27th August, 1962)

A status report for the counter experiments performed at the PS is attached.

Period III (23rd October, 1962 - January/February, 1963)

a) BEAMS

The particle beams foreseen to exist in this time are

- South Hall
- (1) A calibration and monitor beam
 - (2) A test beam ~ 1 Gev with momentum analysis
 - (3) q_1
 - (4) m_2
 - (5) d_{13}
 - (6) c_5 The time at which this beam becomes unusable due to neutrino experiment installations is not yet clear.

- North Hall
- (1) a_2
 - (2) k_2

b) EXPERIMENTS

A revised list of experiments and priorities is given. The main

changes are as follows:

- (1) C4 becomes a study of small angle (2-20 mr) p-p elastic and inelastic scattering, using sonic spark chambers. The motivation is to search for deviation of the forward cross section from the optical value, nuclear-Coulomb interference and excitation of the $(\frac{3}{2}, \frac{3}{2})$ resonance.
- (2) S1 now concentrates on the diffraction region of elastic pion-proton scattering rather than on wide angle scattering. The apparatus layout is similar to that of the completed S2. "Inelastic diffraction" events will be also studied. As a result of this proposal C5 has been withdrawn.
- (3) S17. New estimates of the counting rates and consideration of forthcoming data on the Λ leptonic decay indicate that the experiment would be worthwhile only if $\sim 2 \cdot 10^6$ pictures in ~ 170 shifts were taken. The E.E.C. considers this impracticable with respect to expenditure, availability of personnel and data analysis and invites a further, more modest, proposal.
- (4) S6. A recommendation for time in the q beam for further measurements of polarisation will depend upon the report on the analysis of the existing pictures.
- (5) S11. The a_2 beam is not satisfactory and a beam proposal and status report is required.
- (6) S14. High priority is given to the setting up of the muon beam, μ_4 , in the East Area early in 1963.

Period I, 1963

a) BEAMS

South Hall - The beams expected to operate in this period are the same as those for Period III with the addition of the fast extracted proton beam, for neutrino production, and the deletion of c_5 , during operation of the fast extractor.

North Hall As in Period III.

East Area (1) Muon beam c_4 . A high priority was recommended for the installation of the muon channel. This might involve the extension of the neutrino installation shut down in order to effect the change around of the PS magnet units necessary to allow emergence of pions produced in straight section 64.

(2) Scattered proton beam. An alternative to c_5 is an equivalent beam in the East Area starting from straight section 61.

As the existence of a high-energy proton beam is considered to be essential, it will have to be decided whether it is easier and more satisfactory to reinstate c_5 in the South Hall for the periods between neutrino runs or to bring an identical beam out into the East Area. The slow extracted proton beam is, in any case, considered for the East Area on a longer term basis.

b) EXPERIMENTS

The experiments which will be considered for the period are:-

- (1) S14 muon beam
- (2) C4 p-p elastic and inelastic scattering
- (3) S5 Pion form factor
- (4) S18 π -p backward scattering
- (5) S11 $\bar{p} p \rightarrow \gamma e$.

First priority is given to S14 and C4.

Letters of Intention

A letter of J.A. Newth (Imperial College, London) suggesting preparations for the Special Relativity experiment (S9) was discussed. The previous recommendation that there be no further discussion until June 1st, 1963 was retained.

A letter from C. Rubbia proposing an experiment on the process $\Sigma^+ \rightarrow \Lambda + e^+ + \nu$ was considered and a full proposal was invited.

PS Counter Experiments in Period III

Beam	Symbol	Name	Title	Recommended Priority	Status
c ₅	C4	Taylor	Small angle p-p elastic and in-elastic scattering	a	Possibly only a short test can be done if beam is prematurely blocked by neutrino installations
d ₁₃	S1	Harting	π -p diffraction scattering	a	
	S5	Backenstoss	Peripheral γ -ray production and pion form factor	b	Stand by for d13
	C5	Taylor	π -p diffraction scattering		Proposal withdrawn.
	S18	Weber	π -p backward scattering	b (test)	Not in Period III.
q ₁	S17	Sens	Beta decay of Λ		No time in Period III
	S6	Fidecaro	$\Sigma - \Lambda$		Not decided
q ₂	L2	Lundby	Strange Particle Physics	a	
?	S11	Conversi	$p \bar{p} \rightarrow$ electron pair		Not decided
o ₄	S14	Citron	Muon beam, μ -p scattering	a	Period I, 1963
q ₁ m ₂		Neutrino	Spark chamber tests		

STATUS OF PS COUNTER EXPERIMENTS PERFORMED IN PERIOD II - 1962

Symbol	Name	Title	Shifts al- located	Shifts re- ceived	Status
S8	Taylor	d production in p-p collisions.	20	61	Finished
N4	"	π production at small angles	12		
D6	von Dardel	π^0 lifetime	15	15	Data taken
S2	Caldwell	Peripheral processes	20+?	75	Data taken
S5	Backenstoss	Pion form fac- tor (tests)	?		Test finished
S14	Citron	μ -p scattering (tests)	10p	27	Test finished
A2	Lundby- Roberts	Setting up of beam a_2	15		Finished
S11	Conversi	\bar{p} -p annihilation to electron pair	10	100 p	Analysis of data on the $2\pi^0$ mode
S7	Roberts	$\Sigma - \Lambda$ parity	25p+10	91	No $\Sigma - \Lambda$ parity but by-products, e.g. $\Lambda^0 - \beta$ decay, under analysis.
S6	Fidecaro	$\Sigma - \Lambda$ parity	30p+10	69	Attempt to measure polarisation as a function of Σ^0 angle
S15	Wetherell	p-n charge exchange	?	0	Not scheduled.
	Faissner	Observation of anti-deuteron	25		No conclusion