

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

APPROVED EXPERIMENTS CERN PROTON SYNCHROTRON

November 1970

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PS COUNTER EXPERIMENTS APPROVED BY THE NPRC

Table 1A

EXPERIMENTS IN PRODUCTION OR STARTING AFTER SHUT-DOWN 1970

Area Tgt.	Expt. Code	Beam		Description of Experiment	Authors	Date of NPRC Approval	Conditions of Approval and Time Alloc.	Status (Appr.wks re- maining)
		Code	Description					
South Hall - Target 8	S86	$m_9$	Separated $K^+ < 2$ GeV/c $\bar{p} < 4$ GeV/c $\pi < 5$ GeV/c	$\bar{p}p \rightarrow \pi^+\pi^-$ at 4 GeV/c. Differential cross sect. at small values of t and u. Magnet, scintillators, wire spark chambers; Cerenkov counter.	Padova-Coll.de France: Calvelli, Centro, Cittolin, Gasparini, Limentani, Mittner, Sidwell, Ventura, Voci; Diaczek, Toqueville, Crozon	11.12.68 1.7.70	8 weeks	In Prod. (4 weeks)
	S105	$q_{10}$	Unseparated $\pi, K, p < 4$ GeV/c (Modified $q_7$ )	Polarisation in backward scattering, $\pi^+p \rightarrow p\pi^+$ , $K^+p \rightarrow pK^+$ , $\pi^+p \rightarrow \Sigma^+K^+$ . Polarized target, scintillators, wire spark chambers. HP 2116 B.	CERN-Trieste: Bradamante, Conetti, Dauw, Fidecaro G, Fidecaro M, Giorgi, G. Kalzus, Piemontese, Penzo, Schiavon, Vascotto	6.5.70 28.10.70	10 weeks	Start after Sh.-down '70
South Hall - Target 1	S108	$b_{16}$	Neutral beam at $0^\circ$	Elastic np charge exchange scattering by coincidence technique, from 8-24 GeV/c. Proposed to continue at Serpukhov up to 70 GeV/c. Scintillators, Charpak chambers, wire chambers, 2m magnet. CDC 1700	CERN-Karlsruhe: Engler, Flauger, Gibbert, Mönning, Runge, Schopper	23.9.70	6 weeks	Start May 1971
	S91	$d_{29}$	Unseparated $\pi^\pm, K^\pm, p^\pm < 12$ GeV/c	$K^+p, K^-p, \bar{p}p$ forward and backward scattering, annihilation of $\bar{p}p$ in $2\pi$ 's or $2K$ 's at small angles (high energy part). C magnet, on-line wire chambers, gas Cerenkov counter. IBM 1800	CERN-Ec.Poly., Paris-Orsay (Acc.Lin.)-Stockholm: Lundby, Baglin, Briandet, Fleury; Davier, Gracco, Lehmann, Morand, Treille; Carlson, Johansson, Navarro, Pevsner	8.4.70 28.10.70	8 weeks	Start after Sh.-down '70
	S104	$d_{29a}$	Unseparated $\pi^\pm, K^\pm, p^\pm < 12$ GeV/c	Strangeness + 1 missing mass in $\pi^-p \rightarrow \Lambda^0 + \Lambda$ . Scintillators, spark chambers, water Cerenkov counter	University of Rome: Bizzari, Dore, Guidoni, Laakso, Marini, Martelli, Marsa, Pistilli	6.5.70	No time allocation	Start August 1971
	S74	$m_7$	Separated counter beam $\pi, K, \bar{p}; K < 2.2$ GeV/c $\bar{p} < 3$ GeV/c	High precision measurement on $\Delta S/\Delta Q$ rule. Measurements on $K^0 \rightarrow \pi^+\pi^-\pi^0$ . Counters and wire chambers. Varian 620 i	CERN-Orsay-Vienna: Aubert, Bartl, de Bouard, Lepeltier, Massonnet, Niebergall, Passard, Regler, Stier, Steuer, Vivargent, Willits, Winter, Yvert	3.4.68 24.9.69 5.11.69 1.7.70	8 wks. (Test) • 8 weeks • 6 weeks • 4 weeks	In Prod. (2 weeks)

PS COUNTER EXPERIMENTS APPROVED BY THE NPRC  
Table 1A (cont'd)

Area Tgt.	Expt. Code	Beam		Description of Experiment	Authors	Date of NPRC Approval	Conditions of Approval and Time alloc.	Status (Appr.wks re- maining)
		Code	Description					
South Hall - Target 1	S100	a <sub>7</sub>	Separated counter beam $\pi^-$ , K, $\bar{p}$ ; $K < 2.2$ GeV/c $p < 3$ GeV/c	Differential cross sections for $K^-n$ elastic scattering between 1 and 2 GeV/c. Charkpak chambers, neutron detector. C magnet	CERN-Caen-I.I.S.N. (Bruxelles): Brody, Ferro-Luzzi, Perreau, Ypsilantis, Déclais, Duchon, Séguinot, Bricman	5.11.69 28.10.70	8 weeks (aft. C magnet is available)	Start after S85 May 1971
	S99	a <sub>11</sub>	Low-energy separated beam to produce high flux of $\bar{p}$ between 0.6 and 2.0 GeV/c (Modified a <sub>9</sub> )	Differential cross sections for: $\bar{p}p \rightarrow \bar{p}p$ , $\pi^+\pi^-$ , $K^+K^-$ between 0.6 and 2.0 GeV/c. Wire chambers, counters, AEG magnet	RHEL-QMC-DNPL-Liverpool Coll: Astbury, Jones, Parsons, Eisenhandler, Gibson, Hojvat, P. Kalms, Williams, Kemp, Woulds, Range	5.11.69 23.10.70	6 weeks (aft. AEG magnet is available)	Start after S94 (testing after shut-down)
East Hall - SE62	S93	b <sub>19</sub>	Short neutral beam of the b <sub>13</sub> type derived from e <sub>9</sub> with a vertical septum	$\Phi \eta^+$ measurement by time dependence of $K^0 \rightarrow \pi^+\pi^-$ and of the charge asymmetry in leptonic decay. Charkpak chambers, wide gap magnet, large H <sub>2</sub> Cerenkov	CERN-Heidelberg collaboration: Filthuth, Kleinknecht, Luth, Mockrv. Steffen, Steinberger, Yannucci, Vysochansky, Wahl, Zanollo, Zech	4.6.69 28.10.70	6 weeks	Start after shut-down 1970
	S94	p <sub>5</sub>	Unseparated $\pi^+$ , $K^+$ , $p^+$ < 18 GeV/c, produced from slow ejected proton beam e <sub>9</sub>	$\pi^-p \rightarrow \pi^+\pi^-n$ , $K^+K^-n$ , effective mass measurement. Large magnet, wire chambers, PDP 9 computer	CERN-Munich: Blum, Dietl, Hyams, Koch, Jones, Grayer, Lorenz, Lütjens, Männer, Weissburger, Soechting, Stierlin, Weilhammer	24.9.69 1.7.70 28.10.70	8 weeks 8 weeks 2 weeks	In Prod. (6 weeks)
	S102	p <sub>7</sub>	Unseparated $\pi^+$ , $K^+$ , $p^+$ < 12 GeV/c, produced from slow ejected proton beam e <sub>9</sub> (Modified version of p <sub>5</sub> )	$K^-p$ charge exchange, at 8 GeV/c on polarized target in the range $0 \leq t \leq 0.8$ GeV <sup>2</sup> , and 5 GeV/c and 8 GeV/c on hydrogen in the range $0.5 \leq t \leq 1.5$ GeV <sup>2</sup> . Spark chambers + ETH magnet	CERN-ITH-Imperial College-Saclay Coll: P. Astbury, Beusch, Borghini, Fraudenreich, Gentit, Guisan, Michelini, Mühlemann, Websdale, Wetzel, Zaimidoroza	2.4.70 28.10.70	8 weeks	Start after S94 June 1971
East Hall	S92	b <sub>17</sub>	Neutral beam derived from e <sub>9</sub>	Accurate determination of ratio $\eta_{00}/\eta_{+-}$ . Wire spark chambers and lead glass Cerenkov counters. IBM 1800	CERN-Aachen-Torino: Darrulat, Deutsch, Ferrero, Grosso, Holder, Orito, Pilcher, Rubbia, Sciré, Straube, Radermacher, Tittel	6.11.68 4.6.69 24.9.69 8.4.70 28.10.70	3 weeks + 8 weeks + 6 weeks + 4 weeks	In Prod. (4 weeks)

## PS COUNTER EXPERIMENTS APPROVED BY THE NPRC

Table 1A (cont'd)

Area Tgt.	Expt. Code	B e a m		Description of Experiment	Authors	Date NPRC Approval	Conditions Approval/ Time all.	Status (Appr. wks remaining)
		Code	Description					
East - Hall - SE 62	P6	$k_{12}$	Low energy K meson beam with energy loss separation derived from slow ej. beam $e_g$	Investigation of hypernuclear gamma rays	CERN-Heidelberg-Warsaw: Bamberger, Lynen, Piekarz, Piekarz, Pniewski, Povh, Ritter, Faessler, Soergel	4.6.69 4.2.70 23.9.70	14 wks + 8 wks (shared betw. P6 and P7)	In Prod. (8 wks shared)
	P7			Study of K mesic atoms	CERN-Karlsruhe-Heidelberg: Backenstoss, Bounin, Bunaciu, Egger, Hultberg, Koch	4.6.69 4.2.70 23.9.70		
	S109	$k_{12}$	Low energy K meson beam with energy loss separation derived from slow ej. beam $e_g$	Precise measurement of the $K_{e2}/K_{\mu 2}$ branching ratio. Charnak chambers, scintillators, gas Cerenkov counter, magnet, $\gamma$ -detectors. PDP 9 computer	CERN-Heidelberg: Heard, Heinzelmann, Heintze, Kalbraier, Mittag, Rieseberg, Siebert, Schülein, Soergel, Stelzer, Streit, Wagner, Walenta,	23.9.70	8 weeks	Start after P6-P7 August 1971
East - Hall - SE 62	S103	$\gamma_1$	Hyperon beam, produced from slow ejected proton beam $e_g$ by vertical septum	Setting up and study of a hyperon beam	Badier, Benaksas, Chollet, Bland, Gaillard, Devlin, Lefrançois, Meunier, Repellin, Sauvage, Vanderhagen	4.2.70	4 weeks	Start after sh-d. 1970
	S97		$\pi$ beam produced from fast ejected protons ( $p_{\pi} = 3.1$ GeV/c)	Test of QED by precise measurement of g-2. Large muon storage ring with electrostatic focusing	Bailey, Bassompierre, Borer, Farley, Flegel, Hattersley, Combley, Petrucci, Picasso,	24.9.69		Start 1973
South-East Hall	P1C	$e_g$	Fast ejected proton beam from FE74	Measurement of exotic nuclei using an on-line mass spectrometer	Klapisch, Thibault-Philippe, Nitschke, Chaumont, Bernas	23.9.70	2 weeks (1 pulse in 5 of FE 74)	Autumn 1971

## PS COUNTER EXPERIMENTS APPROVED BY THE NPRC

Table 1B

EXPERIMENTS FINISHED DURING THE PS YEAR (25.11.69 - 16.11.70)

Expt. Code	Beam		Description of Experiment	Authors	Date of Approval/Completion		Total wks.	Status
	Code	Description						
S72	b <sub>16</sub>	Neutral beam at 0°	Elastic np charge exchange scattering above 6 GeV/c. Wire spark chambers and counters. CDC 1700	CERN-Karlsruhe: Engler, Horn, Mönnig, Runge, Schlüdecker, Schmidt-Parzefall, Schopper, Sievers, Ullrich	3.4.69 23.4.69 5.11.69	13.2.70	14 4	Analysis (some data presented at Kiev Conf.)
S96	d <sub>29</sub>	Unseparated $\pi^+$ , $K^+$ , $p^+$ < 12 GeV/c	$\pi^-p$ charge exchange on polarized Butanol target. Spark chamber	Saclay-DESY: Bonamy, Borgeaud, Crozon, Guillaud, Olivier, Guisan, Ledu, Sonderegger, Bienlein, Dinter, Mango, Paul	24.9.69	13.2.70	4	Analysis
S98	d <sub>29a</sub>	Unseparated $\pi^+$ , $K^+$ , $p^+$ < 12 GeV/c	Differential cross section for $\bar{p}p \rightarrow \bar{n}n$	CERN-ETH-Imperial College: Astbury, Bausch, Freudenreich, Frosch, Gentit, Harckham, Lee, Polgar, Websdale	5.11.69	13.2.70	4	Analysis (some data presented at Kiev Conf.)
-	q <sub>7</sub> and s <sub>5</sub>	Proton beams in the range 1 - 24 GeV/c	Calibration of response of cosmic ray detectors to protons. Detectors previously used in balloon and Satellite cosmic ray experiments	University of Leiden: Burger, Swanenburg, de Korte, Lefever	3.12.69	27.2.70	2 wks. parasitic-12 hrs in s <sub>5</sub>	Completed
S90	p <sub>5</sub>	Unseparated $\pi^+$ , $K^+$ , $p^+$ < 18 GeV/c, produced from ejected proton beam e <sub>7</sub>	Magnetic boson spectrometer for masses from 4-8 GeV. Wide gap magnet and wire chambers. IBM1800. Tests for a Serpukhov experiment	CERN-Geneva-Munich University: Baud, Benz, Blumenfeld, Botterill, Damgaard, Nef, Focacci, Kienzle, Klanner, Lechanoine, Martin, Lecompte, Roinischvill, Weitsch	23.4.69	6.3.70	4	At Serpukhov
S89	t <sub>1</sub>	Unseparated $\pi$ , K, p test counter beam $\leq 1$ GeV/c	Strangeness + 1 missing mass in $\pi^-p \rightarrow \Lambda^0$ + M. Scintillators, spark chambers, water Cerenkov counter. Tests of apparatus + logics	University of Rome: Bizzari, Dore, Guidoni, Laakso, Marini, Martellotti, Marsa, Pistilli	12.2.69	17.4.70	4	Preparation for experi- ment

PS COUNTER EXPERIMENTS APPROVED BY THE NPRC  
Table 18 (cont'd)  
EXPERIMENTS FINISHED DURING THE PS YEAR (25.11.69-16.11.70)

Expt. Code	Beam		Description of Experiment	Authors	Date of Approval/Completion	Total wks.	Status
	Code	Description					
S59	p <sub>4</sub>	Unseparated $\pi^{\pm}$ , $K^{\pm}$ , $p^{\pm}$ < 18 GeV/c produced from slow ej. proton beam e <sub>7</sub>	Measurement on the parameter P <sub>0</sub> in $\pi^{\pm}p$ , $K^{\pm}p$ , $p^{\pm}p$ scattering, using a transversally polarized target and counter hodoscopes, IBM 360-44	CERN-Orsay-Pisa: Borghini, Dick, Navarro, Olivier, Reibel; Coignet, Grégoire, Poulet, Cronenberger, Sillou, Michalowicz, Kuroda; Bellettini, Braccini, Del Prete, Foà, Valdata, Sanguinetti	8.12.66 10.7.70 3.4.68 23.4.69 24.9.69 8.4.70	34	Analysis (some data published)
S95	d <sub>29a</sub>	Unseparated $\pi^{\pm}$ , $K^{\pm}$ , $p^{\pm}$ < 12 GeV/c	$\pi^{-}$ - He <sup>4</sup> elastic scattering and test for inelastic coherent reactions. Detection of recoil alpha particles and ETH magnet	CERN-ETH-Uppsala: Asberg, Beusch, Dahlgren, Ekelöf, Herz, Hoistad, Kullander, Landaud, Tyrén, Websdale, Yonnet	4.7.69 31.7.70 5.11.69 8.4.70	8 + 4 parasitic	Analysis
S83	a <sub>9</sub>	Unseparated $\pi$ , K, p < 3.5 GeV/c	Study of neutral resonances decaying into neutral modes in low mass region. $A_2^0$ splitting. Neutral missing mass spectrum, spark chambers and scintillation shower detectors, neutron detectors	CERN-Bologna: Bollini, Dalpiaz, Frabetti, Navach, Massam, Navarria, Schneegans, Zichichi	6.11.68 11.9.70 24.9.69 5.11.69 3.6.70	21	Analysis (some data presented at Kiev Conf.)
-	b <sub>16</sub>	Neutral beam at 0° (used as low intensity proton beam)	Calibration of response of cosmic ray detectors to protons of momentum 10, 16 and 24 GeV/c. Detectors for use in balloon and satellite cosmic ray experiments	Munich-Max-Planck Institute: W. Schmidt, Modlinger, Cleghorn	11.9.70 2.11.70	3 days + 1 wk parasitic	Completed
S107	s <sub>5</sub>	High energy spectrometer line derived from e <sub>7</sub> the experiment's target being in the e <sub>7</sub>	$\pi^{\pm}$ , $K^{\pm}$ spectra from high momentum protons on a B <sub>4</sub> C target. Data needed to calculate $\nu$ spectrum for Gargamelle $\nu$ experiment	Chounet, Eichten, Franzinetti, Haidt, Heusse, Jones, Pattison, Venus, Wachsmuth, Würz	3.6.70 2.10.70	2	Analysis

## PS COUNTER EXPERIMENTS APPROVED BY WPRC

## Table 1B (cont'd)

## EXPERIMENTS FINISHED DURING THE PS YEAR (25.11.69 - 16.11.1970)

Expt. Code	Beam		Description of Experiment	Authors	Date of Approval/Completion	Total wks.	Status
	Code	Description					
S92	S <sub>5</sub>	High energy spectrometer line derived from e <sub>7</sub> the experiment's target being in the e <sub>7</sub>	High energy p-p two-body reactions. 60 m long magnetic spectrometer. Scintillation counters. HP 2116 A	CERN-Rome: Aliaby, Amaldi, Biancastelli, Bosio, Diddens, Dobinson, Klovning, Litt, Matthiae, Rochester, Schlüppmann, Wetherell	4.6.69 23.10.70 3.6.70	14	Analysis (some data presented at Kiev Conf.)
S106	P <sub>4</sub>	Unseparated $\pi^+$ , $K^+$ , $p^+$ < 18 GeV/c, produced from slow.ej.proton beam e <sub>7</sub>	$\pi$ p elastic scattering in backward direction on polarized target, one momentum in the range 6-8 GeV/c	CERN-Orsay-Oxford: Aot, Caverzasio, Dick, Sillou, Gregoire, Jeanot, Kuroda, Michalowicz, Poulet, Booth, Spencer, W.S.C. Williams	6.5.70 23.10.70	6	Analysis
S91	t <sub>1</sub>	Unseparated $\pi$ , K, p Test beam < 1 GeV/c	Test for high energy part of experiment S91 in d <sub>29</sub>	CERN-Ec.Pol., Paris-Orsay (Acc.Lin.)-Stockholm: Lundby, Baglin, Briandet, Fleury, Davier, Gracco, Lehmann, Morand, Treille; Carlson, Johansson	3.6.70 13.11.70	4	Test completed
S76	e <sub>7</sub>	Unseparated $\pi$ , K, p < 3.5 GeV/c	$K^+$ , $\bar{p}$ scattering on polarized protons. Polarized target and counters. IBM 1800	CERN-F.O.M.: Albrow, Andersson, Bosnjakovic, Daum, Erné, Kimura, Lagnaux, Sens, Steuer, Udo	3.4.68 12.2.69 13.11.70 24.9.69 3.6.70	33	Analysis (some data published)
S84	d <sub>29</sub>	Unseparated $\pi^+$ , $K^+$ , $p^+$ < 12 GeV/c	Neutral mesonic resonances in $\pi^- p$ at high energies and their neutral decay modes. Liquid H <sub>2</sub> target w. localization of interaction. $\gamma$ rays, sp.ch., neutron spectrometer. TR 86	Pisa-Karlsruhe: Bertolucci, Mannelli, Pierazzini, Scribano, Sergiampietri, Vincelli; Apel, Ausländer, H. Müller, Sigurdsson, Staudenmaier	6.11.68 13.11.70 11.12.68 24.9.69 1.7.70	12	Analysis
S101	-	Inside PS Ring	Further background measurements at the PS, study of the ISR background problems. Scintillators, optical spark chamber	Agoritsas, Bott-Bodenhausen, Hyams, Potter; Amaldi, Biancastelli, Bosio, Matthiae, Strolin	5.11.69 13.11.70	24 hrs.	Completed

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BUBBLE CHAMBER EXPERIMENTS APPROVED BY THE NPRC  
Table 2A  
AND EXPOSURES MADE IN THE PERIOD 10.7.70 TO 16.11.70

Expt. Code	Beam and Chamber	Expt. Beam	Summary	Groups	Approved Date kpx	Total before 10.7.70	Additional approval Date kpx	Taken in period kpx
T170	k <sub>13</sub> Electrostatic separated beam $\geq .6$ GeV/c HBC 81	$\bar{p}$ , .7 GeV/c	Analysis of the properties of $A2 \rightarrow K\bar{K}$ (splitting), $F_1(1540)$ , $S^*(1050)$ , and other $K\bar{K}$ threshold effects. $D_0(1285)$ in the process $\bar{p}p \rightarrow D\rho$ , $E(1420)$ in the process $\bar{p}p \rightarrow E_0 \pi^0$	CERN, Collège de France	24.9.69 1500	726		770
T175		K <sup>-</sup> , .6- .8 GeV/c	K <sup>-</sup> p and K <sup>-</sup> n interactions betw. 600 and 800 MeV/c incident momentum. With these two complementary experiments the strange hyperon resonances in the mass region betw. 1600 and 1700 MeV will be studied with a significant increase in the statistical precision	CERN-Heidelberg	24.9.69 800	475		95
T176	k <sub>13</sub> Electrostatic separated beam $\geq .6$ GeV/c DBC 81.				24.9.69 800	472		0
T182	u <sub>5</sub> RF separated beam K <sup>-</sup> $> 5$ GeV/c DBC 200, D <sub>2</sub>	K <sup>+</sup> 5.6 GeV/c	The main objectives are a detailed study of the K <sup>+</sup> (1400) and the 'Q' enhancement in (K $\pi$ )	Oxford	4.2.70 250	0		246
T169		$\bar{p}$ 9 GeV/c	Exploratory experiment to obtain information on energy dependence of the various produced channels. Coherent production on deuterium	Strasbourg	4.2.70 150	0		153
T162		p 20 GeV/c	Investigation of proton-neutron interactions at 20 GeV/c	Alma-Ata	4.2.70 $\leq$ 75	0		81



BUBBLE CHAMBER EXPERIMENTS APPROVED BY THE NPRC  
Table 2A (cont'd)  
AND EXPOSURES MADE IN THE PERIOD 10.7.70 TO 16.11.70

Expt. Code	Beam and Chamber	Expt. Beam	Summary	Groups	Approved Date kpx	Total before 10.7.70	Additional approval Date kpx	Taken in period kpx
T188	$u_5$ RF separated beam $K^+$ > 6 GeV/c DBC 200, D <sub>2</sub>	$K^+$ 8 GeV/c	Study of production mechanisms of quasi two-body final states, especially in charge exchange reactions on neutrons and in coherent reactions with the D <sub>2</sub> target. From this and former studies at 3 and 4.6 GeV/c the energy dependence of these processes will be obtained	Brussels, IPN-Paris, Saclay	8.4.70 250	102		196
T179		$\pi^+$ 4 GeV/c	Study of neutral meson resonances which contain a single neutral decay product and are unfittable in the charge symmetric $\pi$ -p interactions	Birmingham, RHEL, Durham	4.2.70 $\leq$ 400	0		421
T194		p 19 GeV/c	The aim is to determine the amount of Pomeron exchange in $NN \rightarrow NN\pi$ by performing a complete t-channel isospin experiment	Scandinavian collaboration	28.10.70 50	0		59
T180	$u_5$ RF separated beam $K^+$ > 6 GeV/c HBC 200, H <sub>2</sub>	$\pi^-$ 9 GeV/c	G- $\pi$ resonances; decay properties, branching ratios and production mechanisms in pion-nucleon collisions, with high statistics	Bologna, Florence, Genova, Milan	4.2.70 250	0		0
T177		$K^-$ 16 GeV/c	Study of resonances, two-body processes and many body reactions	Aachen, CERN, Imp. Coll., Vienna	8.4.70 $\leq$ 300	0		0
T158		p 24 GeV/c	Complete study of pp collisions at 12 and 24 GeV/c with a statistical accuracy of 5 events/ $\mu$ b at each energy	Bonn, Hamburg, Munich	6.12.67 250	129	8.4.70 150	0
T159		p 12 GeV/c				186	8.4.70 100	0
T148	$K^+$ 16 GeV/c	Study of resonance production at high energy and high mass mesonic resonances	Birmingham, Brussels, IPN-Paris, Saclay	3.4.68 100	314	8.4.70 $\leq$ 400	159	

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BUBBLE CHAMBER EXPERIMENTS APPROVED BY THE NPRC  
Table 2A (cont'd)  
AND EXPOSURES MADE IN THE PERIOD 10.7.70 TO 16.11.70

Expt. Code	Beam and Chamber	Expt. Beam	Summary	Groups	Approved Date kpx	Total before 10.7.70	Additional approval Date kpx	Taken in period kpx
T184		$\bar{p}$ , 9 GeV/c	Test of empirical relation for $\bar{p}p$ annihilation into pions and exploration of feasibility and interest of a major experiment at this momentum	Liverpool, Stockholm	1.7.70 50	0		0
T186	$u_5$ RF separated beam $K^+$ > 6 GeV/c HBC 200, H <sub>2</sub>	$K^-$ 14.3 GeV/c	High mass resonances, resonance production mechanisms and high multiplicity events (continuation of T109)	Ec.Poly., Rutherford Lab., Saclay	3.4.68 23.4.69 200	392 (T109)	1.7.70 $\leq 400$	0
T187		$\pi^-$ 3.9 GeV/c	Analysis of $A_2 \rightarrow K\bar{K}, \eta\pi$ , and $3\pi$ production as function of momentum transfer. $E_0$ and $D_0$ properties (continuation of T200)	Saclay	4.6.69 200	214 (T200)	1.7.70 200	272
T187	$u_{10}$ Electrostatic separated beam $\pi^+ < 3.5$ GeV/c HLBC	$\pi^+$ 3.5 GeV/c	Study of the $\pi\pi$ phase shift $\delta_0$ from 370 MeV to 900 MeV by extrapolation from the reaction $\pi^+p \rightarrow \pi^0\pi^0 N^{*00}$ at 3.5 GeV/c	Bergen, Ec.Poly., Madrid, Orsay, Strasbourg	5.11.69 500	535		265
T185	$\nu$ beam Gargamelle HLBC Freon filled	$\nu$ beam from FE 74	Total X sections at high energy for $\nu$ and $\bar{\nu}$ inelastic continuum excitation of the hadronic amplitude structure factors and 'partons'. Intermediate W-Boson? Coupling constants-weak interactions. Neutral currents	Aachen, Brussels, CERN, Ec.Poly., Milan, Orsay, U.C. London	3.6.70 Open	0 in this chamber		0

BUBBLE CHAMBER EXPERIMENTS APPROVED BY THE NRC  
Table 2A (cont'd)  
AND EXPOSURES MADE IN THE PERIOD 10.7.70 TO 16.11.70

Expt. Code	Beam and Chamber	Expt. Beam	Summary	Groups	Approved Date kpx	Total before 10.7.70	Additional approval Date kpx	Taken in period kpx
T191	$\pi^+$ <sub>12</sub> Electrostatic sep. beam $\pi^+$ 2 GeV/c Gargazelle, Propane-Freon mixture	$\pi^+$ 2 GeV/c	Study of $\eta'$ (960 MeV) meson $\eta' \rightarrow \gamma\gamma$ branching ratio $\eta' \rightarrow \pi^+\pi^-\gamma$ decay and asymmetry $\eta' \rightarrow \pi^+\pi^-\eta$ decay $\eta$ meson properties	Bergen, CERN, Strasbourg	3.6.70 Open	0		0
T205	$K^-$ <sub>16</sub> Electrostatic sep. beam $K^-$ 0.5 GeV/c HYBUC	$K^-$ 0.5 GeV/c	Measurement of $\Sigma^+$ magnetic moment to a precision of 5% ( $\pm 0.15$ nuclear magnetons) using a special high field bubble chamber (HYBUC)	Munich, Copenhagen, Vanderbilt Univ.	28.10.70 Open	0		0

## BUBBLE CHAMBER EXPERIMENTS APPROVED BY THE NPRC

Table 2B

SUMMARY OF BUBBLE CHAMBER PICTURES TAKEN IN LAST PS YEAR  
End Shut-down 1969 (27.11.1969) to Start Shut-down 1970 (16.11.1970)

Expt. Code	Chamber	Particle-Momentum GeV/c	Experiment	Collaboration	Total pictures taken (kpx)
T130	HBC 200	$K^-$ 1.4 - 1.7	$K^-p$ formation experiment	CERN, Heidelberg	100
T133	HLBC120	$K^-$ 0.8 - 1.2	Systematic study of $Y_0^*$ formation and decay	CERN, Bergen, Ec.Poly., Orsay, Turin	603
T134	HLBC120	$K^+$ stopped	Study of $K_{e3}^+$ branching ratio	Aachen, Bari, Brussels, CERN	198
T148	HBC 200	$K^+$ 16	Resonance production at high energies	Birmingham, Brussels, CERN, IPN Paris, Saclay	159
T152	DBC 200	$\pi^-$ 9	Study of three pion final states in deuterium	Bari, Bologna, Florence, Paris	324
T155	HBC 200	$K^+$ 1.2 - 1.8	Measurement of $\Delta Q/\Delta S$ and $K^+$ decay	CERN, Saclay	447
T162	DBC 200	p 20	Proton-neutron interactions	Alma-Ata	81
T167	HLBC120	$\pi^+$ 3.5	$\pi\pi$ phase shifts	Bergen, Ec.Poly., Madrid, Orsay, Strasbourg	800
T169	DBC 200	$\bar{p}$ 9	Energy dependence of production processes	Strasbourg	153
T170	HBC 81	$\bar{p}$ 0.7	$\bar{p}p$ annihilations in flight	CERN, Collège de France	976
T171	DBC 81	$K^+$ 0.65 - 0.80	Study of structure in $K^+N$ interactions	Bologna, Glasgow, Rome, Trieste	196
T173	HBC 200	$\bar{p}$ 1.5 - 2.0	$\bar{p}p$ annihilations: u-meson	Glasgow, Liverpool, IPN Paris, Lausanne, Neuchâtel	449
T174	DBC 200	$K^-$ 1.15 - 1.75	$K^-n$ interactions in mass range 1.8 - 2.25 GeV	Birmingham, Edinburgh	456
T175	HBC 81	$K^-$ 0.6 - 0.8	Strange hyperon resonances from $K^-p$ and $K^-n$ interactions	} CERN, Heidelberg	570
T176	DBC 81				472
T178	HBC 200	$K^-$ 1.1 - 1.5	$K^-p$ phase-shift analysis	RHEL	442
T179	DBC 200	$\pi^+$ 4	Study of neutral meson resonances	Birmingham, RHEL, Durham	421
T182	DBC 200	$K^+$ 5.6	Study of $K^*(1400)$ and Q enhancement	Oxford	246
T187	HBC 200	$\pi^-$ 3.9	Study of $A_2$ resonance	Saclay	272
T188	DBC 200	$K^+$ 8	Quasi two-body final states in deuterium	Brussels, IPN Paris, Saclay	298
T194	DBC 200	p 19	Exchange mechanisms in pion production	Scandinavian Collaboration	59

(12)

BUBBLE CHAMBER EXPERIMENTS APPROVED BY NPRC

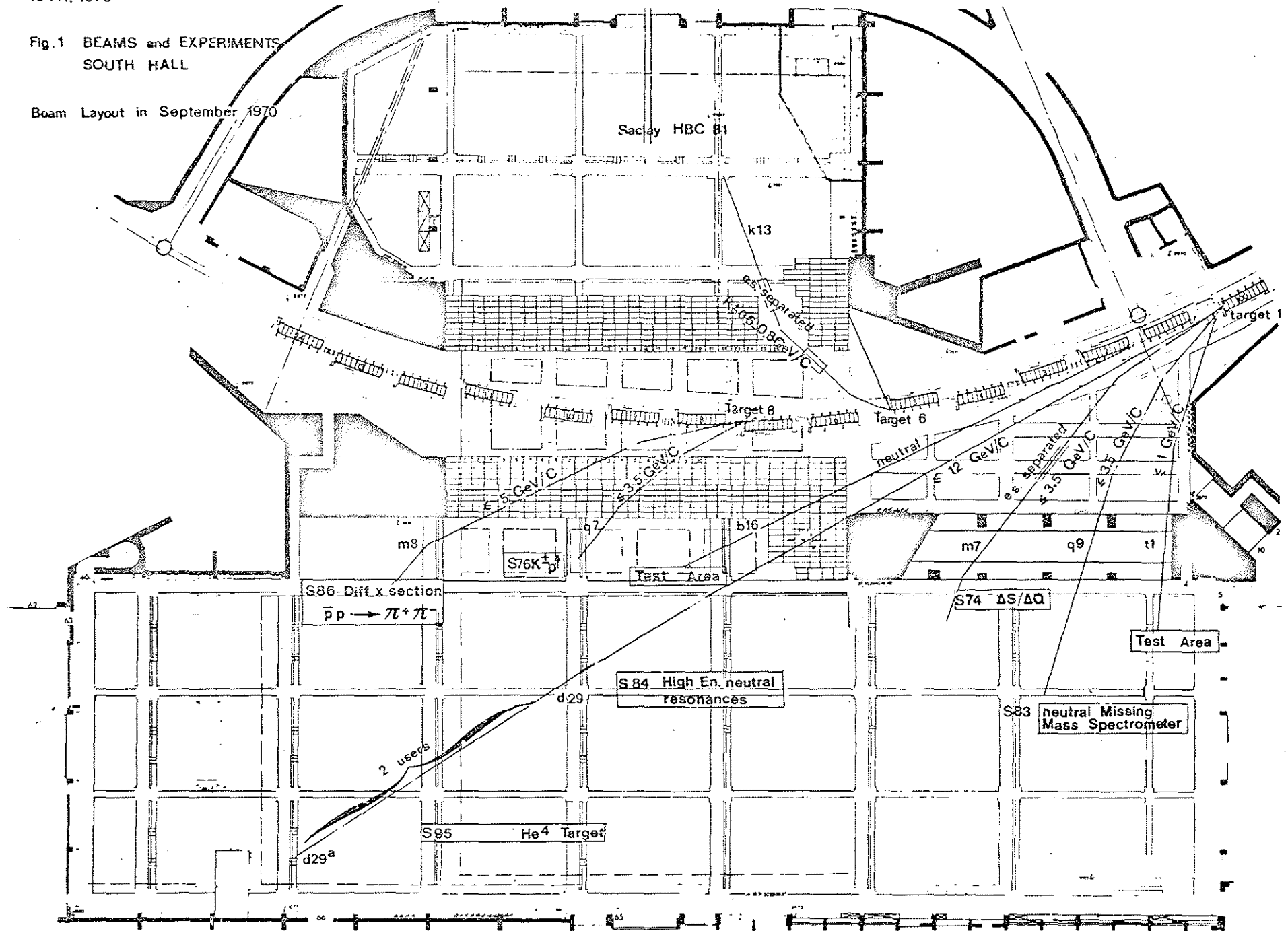
Table 2B (cont'd)

SUMMARY OF BUBBLE CHAMBER PICTURES TAKEN IN LAST PS YEAR  
Shut-down 1969 (17.11.69) to Shut-down 1970 (16.11.70)

	HBC 81	1546
	DBC 81	672
TOTAL PER CHAMBER	HBC 200	1869
kpx	DBC 200	2042
	HLBC 120	1601
	GRAND TOTAL	7730 kpx

Fig.1 BEAMS and EXPERIMENTS SOUTH HALL

Beam Layout in September 1970



CPS/EXP/19  
16.11.1970

Fig:2 BEAMS and EXPERIMENTS  
EAST HALL

Beam Layout in September 1970

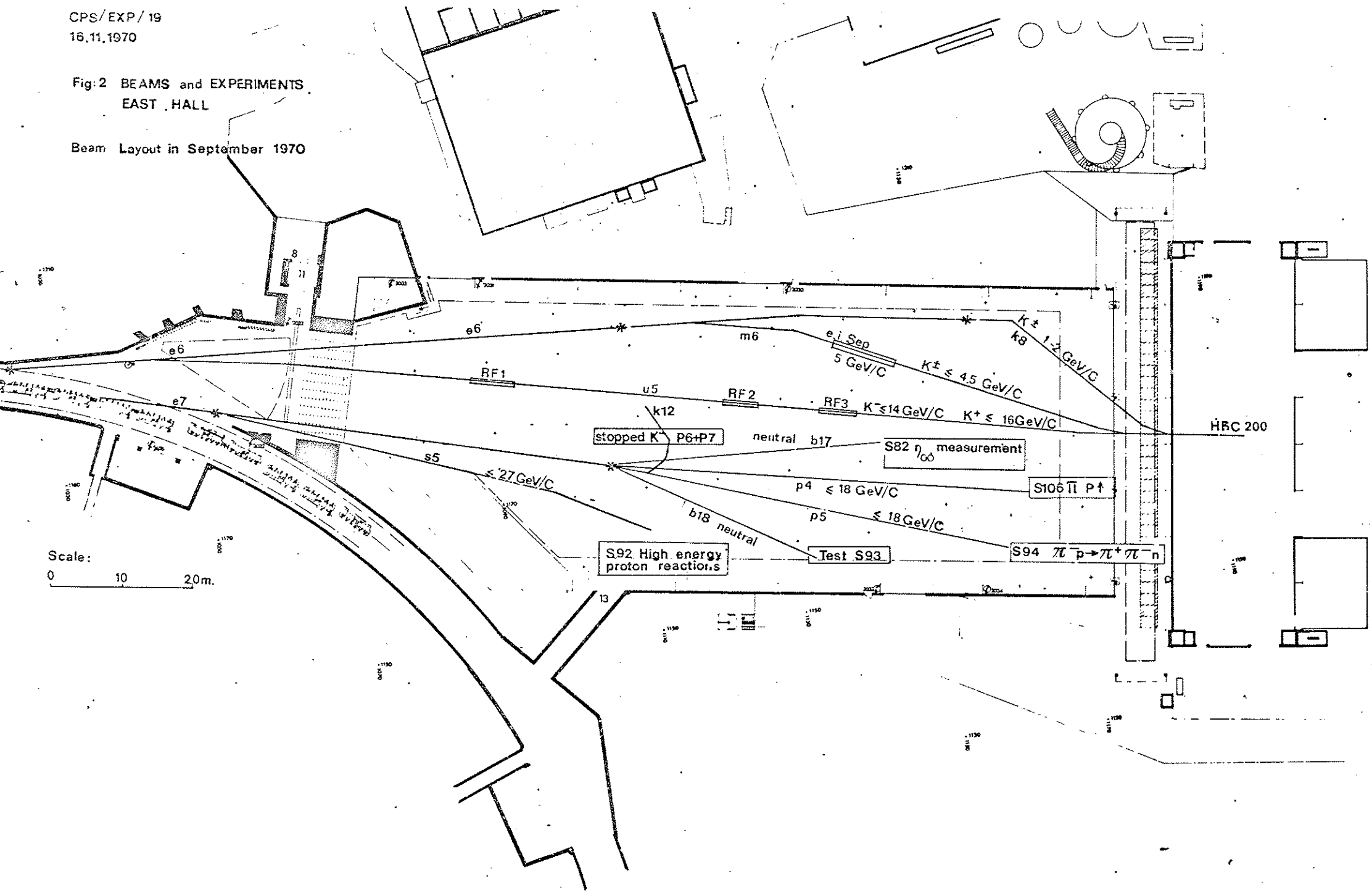


Fig:3 BEAMS and EXPERIMENTS  
SOUTH HALL

Beam Layout  
for January 1971

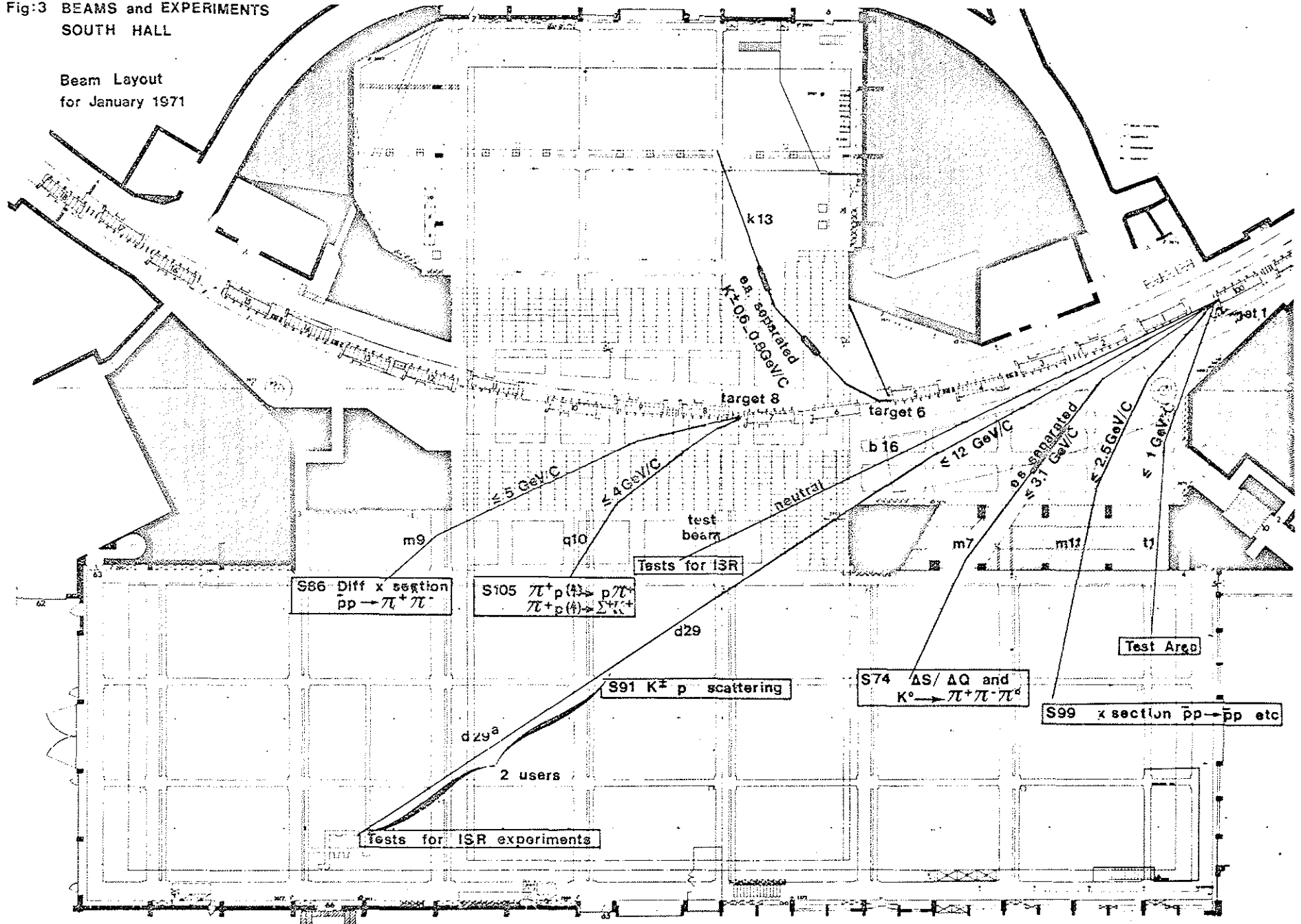
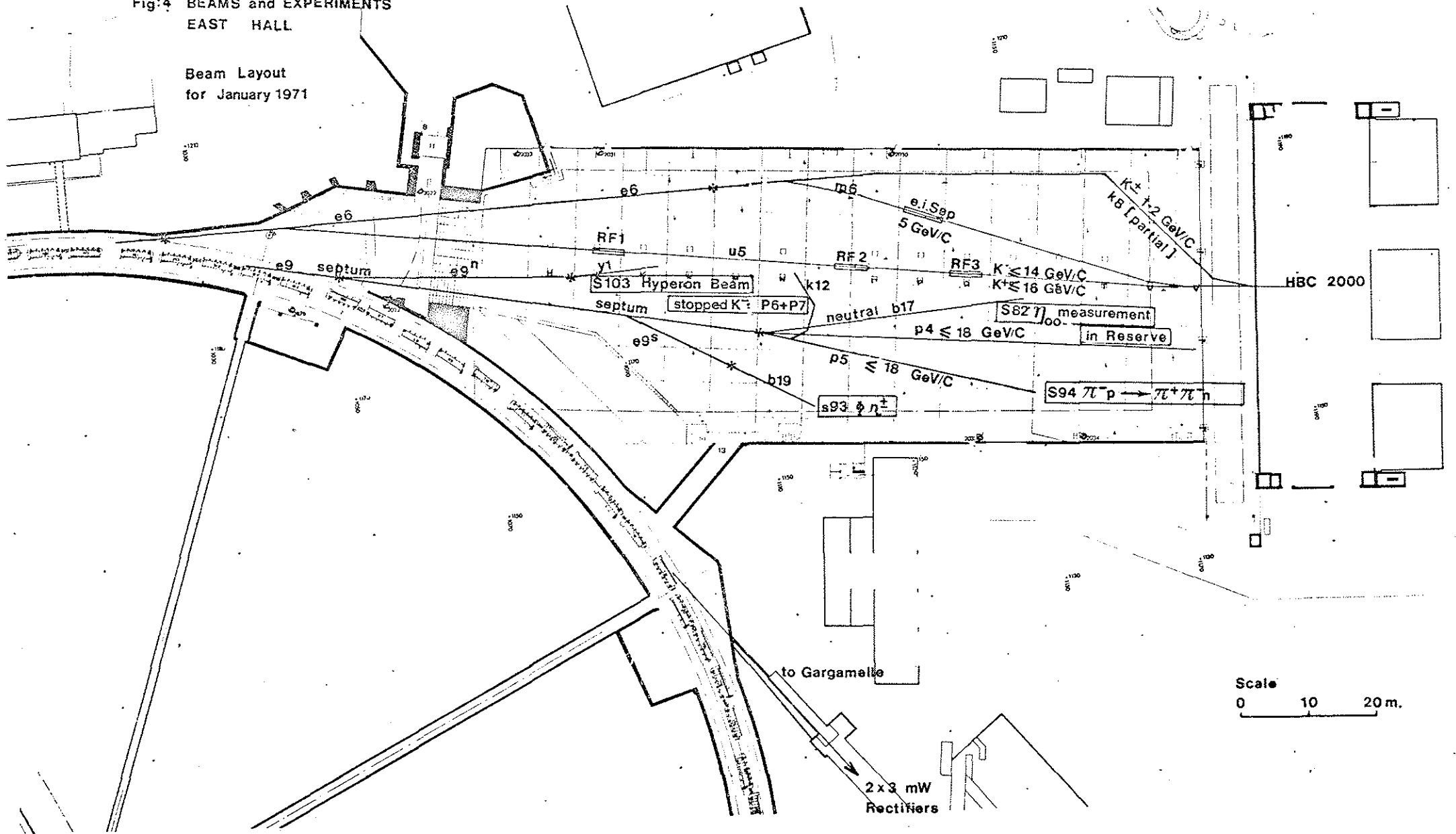




Fig:4 BEAMS and EXPERIMENTS  
EAST HALL

Beam Layout  
for January 1971



Scale  
0 10 20 m.

CPS/EXP/19

16.11.1970

Fig:5 BEAMS and EXPERIMENTS

SOUTH-EAST HALL

BEAM LAYOUT for January 1970

