

PH III-75/9
1 April 1975

PHYSICS III COMMITTEE

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DRAFT MINUTES OF THE MEETING OF THE

PHYSICS III COMMITTEE

held on

6 March 1975 at 14.30 h

PRESENT

ALLARDYCE, B.W.	CERN	LECHANOINE, C.	Geneva
ANDERSSON, G.	Göteborg	MATTSSON, S.	Göteborg
AULD, E.G.	Daresbury/Triumf	MICHAELIS, E.G.	CERN
BAARLI, J.	CERN	NIELSEN, O.B.	Copenhagen
BACKENSTOSS, G.	Basel	NILSSON, A.	Stockholm
BASSALLECK, B.	Karlsruhe	NORLIN, L.	Uppsala
BEGER, H.	CERN	O'CEALLAIGH, C.	Dublin
BERTIN, A.	Bologna	POTH, H.	Karlsruhe
BLOMQUIST, J.	CERN	RAISBECK, G.	Orsay
BLUM, X.	Karlsruhe	RAVN, H.	CERN
BUCCI, C.	Parma	RICCI, R.A.	Padova
CARETTO, A.	CERN	RUDOLPH, J.	Darmstadt
CARBONI, G.	CERN	SERRE, C.	CERN
CERNIGOI, C.	Trieste	SIMONS, L.	CERN
DANIEL, H.	Munich	SKARESTAD, K.	CERN
EKSTRÖM, C.	CERN	SOERGEL, V.	Heidelberg
ENGELHARDT, D.	Karlsruhe	TAKEUTCHI, F.	CERN
ERICSON, T.E.O.	CERN	TAUSCHER, L.	Basel
GERBER, H.J.	SIN	TIBELL, G.	Uppsala
GRUTER, J.W.	CERN	TUYN, J.	CERN
HAASE, E.L.	Karlsruhe	VAN DANTZIG, R.	Amsterdam
HAGERMAN, W.C.	LASL	VERHEÛL, H.	Amsterdam
HAMBRO, L.	CERN	VITALE, A.	Bologna
HANSEN, P.G.	CERN	WEDDIGEN, Ch.	Karlsruhe
HARTMANN, O.	Uppsala	WESTGAARD, L.	CERN
HERZ, A.J.	CERN (Secretary)	WILKINSON, D.H.	Oxford (Chairman)
JONSON, B.	CERN	YIOU, F.	Orsay
KARLSSON, E.	Uppsala	YOCOZ, J.	Saclay
KLUGE, H.J.	Mainz	ZAVATTINI, E.	CERN
KNIPPER, A.	CRN-Strasbourg		

1. MINUTES OF THE MEETING OF 6 DECEMBER 1974.
MATTERS ARISING.

The Draft Minutes (PH III-75/5) were approved.

Wilkinson emphasized that the Committee's recommendation to accept the Omicron spectrometer project had been made on the basis of the sort of physics one would be able to do with this facility. Specific experiments would have to be discussed later on the basis of detailed proposals. He added that the technical and financial aspects were now being discussed; approval had not been given yet but he hoped that it would come soon.

On the subject of the acceleration of ions with nuclear charge greater than 3, Wilkinson gave a brief summary of the history of the suggestion that the SC should be given this capability. One had felt that the project might be very useful if it could be carried out quickly, but the MSC Division had estimated that it would take about five years to obtain a flux of about 10^{10} ions per second (see PH III-75/5). Further discussions had taken place inside and outside CERN and the conclusion had been that an adequately strong physics case could not be made. He had not, therefore, set up the working party proposed at the previous meeting. -- The Committee agreed not to recommend further work in the field; it was agreed, however, that the centre-region model could be made available for the GANIL study.

2. ANNOUNCEMENTS

Wilkinson put on record the appreciation of the whole Physics III community, including the MSC Division, for the work done by the SCIP Panel. Its chairman, P.G. Hansen, had informed him that the Panel felt they had completed their task and should now cease their activities. However, Wilkinson said, the suggestion had been made, and was being discussed, that there should be a permanent panel to keep the user community closely involved in the work of the MSC Division. He therefore proposed, and the Committee agreed, that the Panel should continue to function as a liaison body until a new panel is set up.

3. REPORT ON IRRADIATIONS AT THE PS

Ravn reported that Experiment P18 (see Table 1) had received five hours of prime PS time since the last meeting. There were no new proposals or requests for machine time.

4. REPORT ON THE STATUS OF THE SC2

Michaelis presented the report PH III-75/8. He added that user participation was needed in beam design and testing. In reply to questions he said that everything possible was being done to minimize delays and time the shutdown to obtain the most efficient possible operation for physics. He hoped that the intensity on the internal target would be a few microampères after the shutdown. Wilkinson closed the discussion underlining that user participation in beam design was very much needed.

5. REPORT ON EXPERIMENTS IN PROGRESS AT THE SC2

Zavattini, the SC Coordinator, reported very briefly that ISOLDE and SC 57 (see Table 2) had had useful runs since January; and that Experiments SC 54, 55, 56 and 59/60 were carrying out beam studies and beam tuning.

6. PROPOSALS AND LETTERS OF INTENTION FOR THE SC2.
RECOMMENDATIONS.

PH III-75/2 : Tests for fast separation of nuclear reaction products (Darmstadt; Bächmann et al.)

Rudolph presented the proposal. He added that irradiation conditions were not critical and that they proposed to carry out their tests with nuclides of long life times. Wilkinson commented that it was policy to support work of this kind provided the underlying science was good. The Committee agreed to recommend that the experiment be approved. The experiment code will be SC 64.

PH III-75/6 : Results of the testing of the reconstructed facility; request for SC2 machine time (The ISOLDE Collaboration).

The report and request were presented by O.B. Nielsen. After some discussion, the Committee agreed to recommend that ISOLDE should receive 15 shifts per month subject to the condition that other users must receive at least 65% of the total available physics machine-occupation time.

PH III-75/7 : Local magnetic fields in ferromagnetics studied by positive muon precession (Uppsala-CERN; Karlsson et al.)

As the physics of this project had already been discussed at the previous meeting, Wilkinson did not request a further presentation. He suggested that full approval in principle be recommended; a time allocation to be made later when beam studies have been completed and communicated to the Committee. The Committee agreed to recommend approval in this form. The experiment code will be SC 65.

PH III-75/1 : Letter of Intention: Investigation of muon depolarization in condensed matter (Parma; Bucci et al.)

Bucci presented the Letter of Intention. Both he and the Uppsala group (SC 65) expressed interest in cooperating with each other. Wilkinson and Zavattini suggested, and the Committee agreed, that Bucci et al. be encouraged strongly to submit a full proposal.

7. DATE OF NEXT MEETING

It was agreed to hold the next meeting in late June or early July.

8. OTHER BUSINESS

Wilkinson announced that the Director-General of Laboratory I had appointed W.O. Lock to the position of Secretary of the Physics III Committee in succession to Herz who was taking on other responsibilities. The change-over would take place on 1 April 1975.

A.J. Herz

Table 1

Programme of Physics III irradiations at the PS
Status as of 6 March 1975

Code	Beam	Experiment	Team	Documents	NPRC approval	Approved irradiation time	Time used		Remaining time		Remarks
							Parasitic	Prime	Parasitic	Prime	
P18	Internal (stand-by), some external	Fragmentation cross-sections of cosmic-ray interest	Orsay: Yiou, Ralsbeck	72/15, 74/28 74/35	17.7.74	To be arranged with Nuclear Chemistry Coordinator	2×10^{16} protons	5 hours	-	-	Special request to be submitted whenever prime PS time is required - progress reports to be submitted about every six months
P22	Some internal; mainly external	Production cross-sections and recoil properties of rare gas nuclei produced in various target elements	INP, Bordeaux-Gragnan: Ragnier, Simonoff-Lagarde, Simonoff	73/12 rev.	17.4.74	To be arranged - see remarks	3×10^{17} protons	-	Three exposures	-	Must not use prime PS time
P23	Internal	Angular and energy distributions of heavy fragments from bombardment of uranium and gold	Marburg-Oslo: Habbestad, Alstad, Glomset, Hagebø, Halderset, Johansen, Methasiri, Pappas, Esterlund, Patzelt	74/14, 74/21(I)	17.4.74	9 x 1 hour - see remarks	-	2×1.3 h (3.5 h total*)	-	6 x 1 h	Group has been asked to try to find a way of reducing the load on the PS
NC Coord	Internal	Termination of earlier work. Test of fast chemical separation	Darmstadt: Neidhart et al.	-	17.4.74	Minor irradiations arranged with Nuclear Chemistry Coordinator (see remarks)	8×10^{15} protons	2.5 h total*	-	-	The time available to the NC Coordinator must not be used for full experiments

* Total time = irradiation time + pumping time

Table 2

Physics III programme at the SC
Status as of 6 March 1975

Code	Experiment	Team	Documents	XPRC Approval	Conditions concerning running time	Remarks
SC21	2S-2P energy separation in muonic helium (laser techniques)	CERN-Pisa: Zavattini et al.	74/48	pending	4 weeks parasitic	Preparatory work for continuation at SC 2
SC50	Measurement of nuclear cross-sections of astrophysical interest	Orsay: <u>Yiou</u> , <u>Raisbeck</u> , <u>Fontes</u> , <u>Ferron</u>	73/18	17.4.74	About two shifts per month (less initially)	Progress report and continuation request to be submitted at least once a year
SC51	Study of neutron-deficient nuclei between Pb and U, using helium-jet transport technique	Marburg-Giessen: <u>Brandt</u> , <u>Junglas</u> , <u>Molzahn</u> , <u>Patzelt</u> , <u>Westmeier</u> , <u>Wilhelm</u> , <u>Wolnik</u> , <u>Kornahl</u> , <u>Wagner</u> , <u>Waicher</u>	74/15	17.4.74	Must be totally parasitic	Parasitic to ISOLDE
SC52	Measurement of average energies, forward momenta and anisotropies of specific fission products from disintegration of Pb by 600 MeV protons	Marburg-Oslo: <u>Habbestad</u> , <u>Alstad</u> , <u>Glomset</u> , <u>Hagebø</u> , <u>Haldorsen</u> , <u>Johansen</u> , <u>Pappas</u> , <u>Methasiri</u>	74/21 (III)	17.4.74	4 x 2 hours internal plus two long parasitic runs in external beam	To run in 1975. Cannot run downstream of ISOLDE target
SC53	Study of products of binary fission in disintegration of U, Pb, Pr, Ag, Sr and Cu by 600 MeV protons	Lund-Oslo: <u>Andersson</u> , <u>Areskoug</u> , <u>Gustafsson</u> , <u>Hyltén</u> , <u>Schröder</u> , <u>Hagebø</u>	74/12	17.4.74	No undertaking as to rate at which programme will be implemented	To start in 1975
SC54	Calibration of neutron detectors used in PS experiment S112	Birmingham-RHLL-London (Westfield): <u>Strong</u> , <u>McMahon</u> et al.	73/5 74/1	17.4.74	Must not absorb more than one month of physics time with beam sharing. See remarks.	Additional time may be made available in a manner so as not to impede machine development or other experimental programmes
SC55	Study of particle emission in absorption of stopped π^- in ^{16}O	Karlsruhe-Trieste: <u>Bassalleck</u> , <u>Engelhardt</u> , <u>Haase</u> , <u>Lewis</u> , <u>Takeuchi</u> , <u>Ullrich</u> , <u>Cernigoi</u> , <u>Pauli</u> , <u>Moschini</u>	71/22 74/6	17.4.74	See remarks	Testing facilities requested as early as possible; very poor beam quality acceptable for tests
SC56	Tests for experiment at SIN	University of Geneva: <u>Hess</u> et al.	74/8	17.4.74		Suitable beam likely to be available early, during first 6 months of operation
SC57	Radio-biological effectiveness, and its dose-rate dependence, of 595 MeV neutrons	CERN Health Physics: <u>Baarli</u> , <u>Bianchi</u> , <u>Nordell</u> , <u>Sullivan</u>	74/11	17.4.74	About 18 shifts at dose rates similar to those obtained in SC1. See remarks.	Cannot run before SC2 operation has become stable and reliable. Experiments require advance notice for preparation of material.
SC58	U(p,x) ^{24}Na reactions with protons between 170 and 600 MeV	Marburg-Oslo: <u>Habbestad</u> , <u>Alstad</u> , <u>Glomset</u> , <u>Hagebø</u> , <u>Haldorsen</u> , <u>Johansen</u> , <u>Methasiri</u> , <u>Pappas</u>	74/21 (II)	17.4.74	6 x 1 hour internal plus two parasitic runs in external beam	Cannot run downstream of ISOLDE target
SC59	Tests for partial ρ capture rate $^6\text{Li} + ^4\text{He}_{g.s.}$	Louvain: <u>Deutsch</u> et al.	74/9 74/36	17.7.74	Up to 25 shifts	To be scheduled when uncertainty concerning population of hyperfine levels resolved
SC60	Search for $\pi^- + A \rightarrow B + 2\gamma$	Louvain: <u>Deutsch</u> , <u>Favart</u> et al.	74/10 74/37	17.7.74	See remarks	25 shifts approved in principle. Further time allocation to be discussed later.
SC61	Tests for experiment on weak neutral currents in μ atoms	CERN-Karlsruhe-Basel: <u>Backenstoss</u> , <u>Fetscher</u> , <u>Hagelberg</u> , <u>Koch</u> , <u>Pavlopoulos</u> , <u>Path</u> , <u>Simons</u> , <u>Tauscher</u>	74/39	17.7.74	See remarks	Scheduling to be decided later
SC62	Tests of equipment for SPS experiment (Proposal P9)	CERN-Genova-Orsay-U.C. London: <u>Gracco</u> et al.	74/47	9.10.74	Must be finished by 1 April 1975. Must not use more than 5 days prime user time in total.	
SC63	Cross-sections for elastic scattering of μp and μD atoms against p and D	Bologna: <u>Bertin</u> , <u>Massa</u> , <u>Vannini</u> , <u>Vitale</u>	74/50	9.10.74		Request for scheduling and time allocation to be submitted when adequate beam available
SC64	Tests for fast separations of products of nuclear reactions	Darmstadt: <u>Bächmann</u> , <u>Neidhart</u> , <u>Rudolph</u>	75/2	pending	See remarks	To run at SC only
SC65	Study of local magnetic fields in ferromagnetic materials by observation of μ^+ precession	Uppsala-CERN: <u>Karlsson</u> , <u>Hartmann</u> , <u>Korlin</u> , <u>Borghini</u> , <u>Niinikoski</u>	74/59 75/7	pending	See remarks	Time allocation and scheduling to be decided when results of beam studies are available
I	ISOLDE programme	ISOLDE Collaboration (Chairman: O.B. Nielsen)	73/15 74/16 74/49	17.4.74		
			75/6	pending	15 shifts/month but see remarks	Machine occupation time not to exceed 35% of available physics time