

CERN/SPSC 2000-007
SPSC 46
28.01.2000

SPS AND PS EXPERIMENTS COMMITTEE

Decisions taken at the 46th meeting held on 25 January 2000

OPEN SESSION

1. Status report on the Antiproton Decelerator: S. Maury
2. Status report from ATHENA: R. Landua
3. Status report from ATRAP: G. Gabrielse
4. Status report from ASACUSA (SPSC 2000-004/M642): R. Hayano
5. Status report from NA48 (SPSC 2000-005/M643): H. Wahl
6. A high sensitivity investigation of K_s and neutral hyperon decays using a modified K_s beam (SPSC 2000-002/P253 Add.2): A. Ceccucci
7. A precision measurement of charged kaon decay parameters with an extended NA48 setup (SPSC 2000-003/P253 Add.3): V. Kekelidze

CLOSED SESSION

Present: P. Bagnaia*, W. Braunschweig, R. Cashmore*, M. Cavalli-Sforza, S. Dalla Torre, Y. Déclais, J.-P. Delahaye, A. De Roeck, C. Détraz, R. Forty, G. Goggi, P. Grafström, U. Heinz, K. Hübner, J. Knobloch, B. Koene, K. Königsmann (Chairman), W. Kühn, A. Magnon, S. Myers, N. Pavlopoulos, M. Pennington, A. Pich, J.-P. Riinaud, J. Stachel, H. Taureg (Secretary), M. Tyndel, D. Websdale, A. Zalewska

* Part-time

Apologies: J. May, F. Bobisut, T. Ruf, C. Wagner

1. INTRODUCTION

The Chairman welcomed two new ex-officio members: J.-P. Delahaye, PS Division Leader, and S. Myers, SL Division Leader. One new member of the Committee, F. Bobisut from Padova, could not attend this meeting. The Chairman presented apologies from further three members of the Committee.

2. APPROVAL OF THE MINUTES

The minutes of the 45th SPSC meeting (SPSC 99-37 / SPSC 45) were approved without modifications.

3. REPORTS FROM THE 143rd and 144th MEETINGS OF THE RESEARCH BOARD

At the 143rd meeting of the Research Board T. Ruf reported on the NA48 accident. The Research Board asked for a review of the running time required to complete the experiment and a thorough investigation of the accident. Running after 2000 will be limited due to LHC constraints.

The Chairman reported on the 144th meeting of the Research Board. He summarised the status of NA59 which studies the production of polarised photons using crystals. A 50% linear polarisation of the photons is deduced from a 6% asymmetry in the pair production in a second crystal. A direct measurement of the polarisation shall be demonstrated in March 2000 using ρ photo production before further beam time will be allocated. The Research Board **took note**.

The Chairman summarised the status report of DIRAC (PS 212) studying the lifetime of $\pi^+\pi^-$ atoms. The experiment is ready for a lifetime measurement to 20% in 2000 and an improvement to 10% in 2001 is feasible. The need of the experiment for a maximum number of protons was recognised but has to be reconciled with other activities. The Research Board **congratulated** the experiment on its progress.

The Chairman presented proposal P315 which wants to study hadron production relevant to a neutrino factory and to atmospheric neutrino flux predictions. The SPSC recommended approval of the first phase of the experiment at the PS, subject to clarifications on funding. The Research Board **strongly encouraged** the experiment to carry out the measurements and will be ready to approve the experiment after clarification of funding, space and personnel issues.

The Chairman reported on proposal P312, a solar axion search. The SPSC recommended approval subject to issues relating to funding, installation site and other experiments aiming at the same physics. The Research Board recognised the physics interest and **encouraged** the experiment to search for a suitable site and produce a funding scenario.

The Chairman presented proposal P309, a study of a positron source using channelling. The SPSC recommended approval and allocated 18 days of beam. The Research Board **concurred** with the approval. The experiment will be known as **WA103**.

The Chairman reported on the detailed information received from ICANOE on funding, manpower, schedule and technical design as well as the improvements due to the addition of the NOE part. He stressed the importance of the T600 module test and a strengthening of the collaboration. Running with a few modules should be possible in 2005. The Research Board **concurred** with the assessment of the SPSC. A successful test of the T600 module is seen as a prerequisite for approval of the experiment.

The Chairman summarised the status of the OPERA experiment. A report on costs and planning has been received. Progress has been made on a baseline design and sharing of responsibilities. Strengthening the collaboration was recommended. Running with a complete detector in 2005 seems feasible. The Research Board **concurred** with the assessment.

The Research Board had a long discussion on the importance to observe τ appearance and the low event numbers expected.

4. STATUS REPORT ON THE SPS

The new SL Division Leader S. Myers reported that the shutdown work is progressing and preparations for LHC are under way. More details will be given in the March meeting.

5. STATUS REPORT ON THE PS

J.-P.Riunaud reported on the PS activities. Shutdown work is under way at the PS. At the AD a number of improvements are being implemented on the electron cooling, the corrector magnets, the power supplies for half-quadrupoles. The installation work is on schedule for the beam line of the TOF experiment.

The Chairman **congratulated** the AD for the impressive progress with this new machine.

6. DISCUSSION ON THE OPEN SESSION

6.1 STATUS REPORT OF ATHENA:

The Committee heard a report on the status of the ATHENA experiment which wants to do precision spectroscopy on anti-hydrogen. Since the proposal the collaboration has modified the magnet design for the phase 1 experiment, simplified the positron trap and improved the anti-hydrogen annihilation detector. The phase 1 setup is installed and ready to study antiproton positron recombination. But there are doubts whether the nested recombination trap will work. Others ways for anti-hydrogen formation are being investigated. However, these methods may not facilitate the spectroscopy of anti-hydrogen. The results of this year will determine the route to be taken later on.

The Committee **congratulated** the collaboration on the progress in setting up the experiment.

6.2. STATUS REPORT OF ATRAP:

The Committee heard a report on the status of ATRAP which wants to test CPT by means of studying anti-hydrogen. Installation of infrastructure and experimental equipment for phase 1 is nearing completion. Simultaneous stacking of antiprotons and accumulating positrons are feasible in this years run. The Committee **congratulated** the collaboration on the achievements in installing the experiment.

6.3 STATUS REPORT OF ASACUSA:

The Committee heard a report on the status of the ASACUSA experiment. The experiment wants to study the spectroscopy of antiprotonic helium. The submitted memo (SPSC M642) contains the status of the phase 1 experiment and a revised proposal for phase 2. The equipment for phase 1 is installed and working as shown by the observation of a laser induced transition. The aims of phase 1 can be reached in 2000. The equipment for phase 2 is under construction and test. The aim of phase 2 has been concentrated on antiprotonic atom formation and dE/dx measurements. The collaboration hopes to install the phase 2 equipment in September and start the phase 2 program this year.

PS Division is cautious about the schedule for the RFQ given the available resources for this project. It will report on the progress with the RFQ in the May meeting.

The Committee **congratulated** the collaboration on the impressive progress with the phase 1 experiment. The Committee **recommended** approval of phase 2 as outlined in SPSC M642 and its extension into phase 3 with an antiproton trap. The Collaboration and PS Division shall agree upon a detailed planning and scheduling of the RFQ tests and installation. The Committee **asked for** a clarification of the phase 3 programme.

6.4 STATUS REPORT ON NA48:

The Committee heard a report on the status of the NA48 experiment which studies CP violation in the kaon sector. The collaboration wants to repair the damage from the accident in November 1999 and expects to improve the precision in the measurement of ϵ' by collecting more data for checks of corrections and systematic errors. The Committee **recommended** the repair of the spectrometer and approval of beam time in 2000 and 2001 for a thorough study of the corrections to and systematic errors of ϵ' . The Committee **expressed** its hope that interference between the repair work for NA48 and construction work of other experiments can be avoided or at least minimized.

6.5 ADDENDA TO NA48:

The Committee discussed the two addenda to the NA48 proposal, one (SPSC 2000-002/P253 Add.2) to study K_S^0 decays and the other (SPSC 2000-003/P253 Add.3) to study charged kaon decays. The Committee **agreed** to review the addenda in the March meeting after further clarification of the physics aims, comparison with competing experiments, the time scale and resources.

7. TEST BEAM REQUEST FOR MINOS

The Committee heard a report on the test beam request for the MINOS experiment. The collaboration wants to test the calibration system for the long baseline neutrino experiment at FNAL. The test is planned for 6 weeks in the T11 beam line at the PS. The Committee **approved** the requested beam time for this year.

8. DOCUMENTS RECEIVED

Addendum 2 to proposal P253 - NA48: A high sensitivity investigation of K_s and neutral hyperon decays using a modified K_s beam (CERN/SPSC 2000-002/P253 Add.2).

Addendum 3 to proposal P253 - NA48: For a precision measurement of charged kaon decay parameters with an extended NA48 setup (CERN/SPSC 2000-003/P253 Add.3).

Status of the NA48 experiment and plans for 2000/01;
(CERN/SPSC 2000-005/M643).

ASACUSA Progress report: Atomic spectroscopy and collisions using slow antiprotons (CERN/SPSC 2000-004/M642).

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