

MINUTES on the 102nd Meeting of the SPSC
Held on Tuesday 28 June and Wednesday 29 June 2011

OPEN SESSION

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| 1. Status and Plans of the OPERA Experiment | Giovanni Di Lellis |
| 2. Status and Plans of the ICARUS Experiment | Carlo Rubbia |
| 3. Status and Plans of the COMPASS Experiment | Fabienne Kunne |
| 4. A future experimental programme on
proton-driven plasma wakefield acceleration | Allen Caldwell |

CLOSED SESSION

Present:

S. Bertolucci, P. Bloch²⁾, H. Breuker, M. Charlton¹⁾, P. Collier¹⁾,
O. Cremonesi, L. Falk, L. Feld, E. Gallo, L. Garrido, L. Gatignon,
M. Gonin, S. Maury, L. Ramello, C. Rembser (scientific secretary),
E. Rondio, N. Severijns, A. Specka³⁾, C. Vallée (Chair), U. Wiedemann,
I. Wingerter-Seez

¹⁾ Present on Tuesday only, ²⁾ present on Wednesday only,

³⁾ present for 6.1 only

Apologies:

A. Denig, L. Favart, B. Panzer-Steindl, C. Touramanis



1. MINUTES OF THE 101st MEETING OF THE SPSC HELD ON 5 APRIL AND 6 APRIL 2011

The minutes of SPSC101 were approved (CERN-SPSC-2011-019, SPSC-101).

2. CHAIRMAN'S REPORT FROM RB196

The Chairman reported on the Research Board (RB) meeting, RB196. The following points were presented and, where necessary, discussed:

- 1.) The SPSC presented the good progress from NA62 in its measurement of the RK ratio, as well as the hardware developments for the $K \rightarrow \pi \nu \nu$ measurements, and expressed its support for a technical run end of 2012.
- 2.) The SPSC reported the DIRAC publication of the 2001-03 data and the progress for 2011 running, and expressed its concern on a timely analysis and publication of the 2008-2010 data.
- 3.) The SPSC reported about the detector improvements and efficient data taking of CLOUD in 2010, and expressed its wish to see the results publicly released on a short time scale.
- 4.) The SPSC expressed its support to the technical developments foreseen by CAST to improve its sensitivity to axion-like particles, and reminded the need to make best use of the coming months to complete the He3 scan.
- 5.) The SPSC expressed its support to the physics motivation of the ICARUS@PS memorandum, and its expectation of a detailed technical proposal to further review the project.
- 6.) The SPSC summarised the recent developments around the PAX proposal and expressed its recommendation that a PAX implementation at the AD before the long LHC shutdown would be premature.

The Research Board noted points 1.) to 5.) and endorsed point 6.).

Following the discussion at the previous meeting of the Research Board, it was mentioned that ELENA is now an approved project and is included in the five-years medium-term Plan.

The management of the calorimetry R&D projects was clarified: the DREAM experiment should apply for status at CERN as an RDxx experiment. The beam requests by the CALICE collaboration will be evaluated in close contact with the DESY PRC, which is regularly reviewing the CALICE project.

As part of a discussion on the LHC long shutdown options, it was clarified that a decision on the start of the shutdown will not be made before beginning of the year 2012, and that running of the injectors during a part of 2014 will depend on manpower considerations.

3. STATUS OF ACCELERATORS

S. Maury reported on the start-up and operation of the accelerators.

After a successful start of the new main-magnets power converter of the PS (POPS), problems stopped its operation and modifications are required. The work is ongoing and the POPS is scheduled to restart in week 29. However this did not cause a delay for the start-up of the PS machine as the old power supply is still operating and serves as a backup during the commissioning of the POPS.

Apart from a number of minor problems and glitches on the power network, the start-up with beam was going well and on schedule.

The major delay delivering beams to the experiment was for the SPS North Area where the failure of the motors of three main beam dump collimators (TAXes) caused a delay of four weeks, see report by L. Gatignon. However as more protons were now available for other experiments, CNGS and n-TOF profited from the delayed start of the SPS North Area.

S. Maury pointed out that the injector accelerators did not only manage to achieve a smooth start for CERN's fixed-target programme but in addition provided protons to the LHC allowing the LHC experiments to collect an integrated luminosity of 1fb^{-1} before the middle of June 2011.

4. STATUS OF EXPERIMENTAL AREAS

L. Gatignon presented the status of the experimental areas and summarised their start-up.

In general the different zones started up smoothly, except for the North Area. In the East Area the first irradiation run had to be delayed by about 6 days due to a problem with a splitter, but otherwise the East Area has been running very smoothly. CNGS has been running since the 18th of March and already produced $2.6 \cdot 10^{19}$ protons on target since that date. AD has been running with very high efficiencies. The preparations for the AEGIS run are progressing, but the installation of the AEGIS control room has suffered some delays due to radioprotection issues and is now on the critical path.

The North Area start-up was delayed by about four weeks, which caused several beam tests to be cancelled and the user's schedule to be changed. The main cause of the delay was the almost simultaneous failure of the motors of three main beam dump collimators (TAX, Target Attenuators experimental areas) of different beam lines. As these motors are located in a high ambient dose region, it is understood, following investigations, that radiation damage caused failures of the motor insulation. Without functioning TAXes the entire beam lines of the North Area are stopped. A provisional intervention was done to allow for COMPASS and nominal EHN1 operation, as well as for the continuation of the installation work for NA62 in ECN3.

The SPSC encourages the Experimental Area team to study and implement consolidation programme on all TAXes to ensure as soon as possible a flexible and reliable operation in all beam lines.

5. PS, SPS AND AD SCHEDULES

H. Breuker reported on the status of the experiments and beam tests at the AD, PS East Area and SPS North Area.

For the experiments at the AD it has been an excellent start-up and the efficiency with which the machine was delivering anti-protons is better than 90%. Currently ongoing is the week of physics for the AD4 (ACE) experiment.

At the PS East Area, the experiments and beam tests are running well. It

was possible to adjust the users schedule such that the irradiation tests got additional beam time to compensate for the few days of beam time lost at the start-up, see the report by L. Gatignon.

At the SPS North Area four weeks of beam time was lost due to the failure of the motors of three main beam dump collimators (TAXes), see the report by L. Gatignon. Because of this, e.g. the DREAM run was shortened.

H. Breuker reported that it would be possible to have the ion run for NA61 at the end of this year.

6. DISCUSSION OF THE OPEN SESSION

6.1 LOI ON PROTON –DRIVEN PLASMA WAKEFIELD ACCELERATION

The SPSC received with interest a Letter of Intent describing a proposal of a future experimental programme using SPS beams to study proton-driven plasma wakefield acceleration. **The Committee will** review the LOI.

REVIEW OF THE CNGS NEUTRINO EXPERIMENTS

The SPSC is pleased about the strong efforts made by the CERN accelerator teams to send as many protons as possible on the CNGS target. **The committee is also pleased** about the stable operation and high data taking efficiency of the CNGS experiments.

6.2 CNGS1 (OPERA)

The SPSC congratulates the OPERA collaboration for the publication of the analysis performed on the data sets recorded in 2008 and 2009.

The committee is looking forward to the completion of the analysis of the 2010 data and the publication of the results.

The committee is pleased with the improvements achieved for the data simulation and background studies and encourages the collaboration to continue the timely analysis of the data.

6.3 CNGS2 (ICARUS)

The SPSC congratulates the ICARUS collaboration on bringing the T600 LAr-TPC detector into full operation and to stable data taking in 2010 and 2011. **The committee notes with pleasure** the progress in

automated event filtering and reconstruction. **The committee is looking forward** to first physics results.

6.4 COMPASS

The SPSC congratulates the COMPASS collaboration for having published new results on the proton spin structure.

The SPSC notes with pleasure that the exotic state $J^{PC}=1^{-+}$ is confirmed and the committee is looking forward to publications based on the 2008 and 2009 hadron data sets.

The SPSC takes note that the preparation of the experimental setup for the Drell Yan measurement takes at least one year and that the full instrumentation for the DVCS measurement will be ready in 2013 only.

The SPSC therefore considers that the COMPASS proposal to take Primakoff data and to perform preparatory studies for the DVCS measurement in 2012 makes best use of the available beam time and **the committee recommends** data taking as proposed.

7. FOLLOW-UP ON EXPERIMENTS AND PROPOSALS

7.1 DREAM

The committee recognises the quality of the development towards a precise hadronic calorimeter carried out by the DREAM collaboration.

The committee supports the request made by DREAM to become a CERN RDxx project.

The committee recommends the DREAM collaboration to tighten the links with future detector projects.

8. LHC LONG SHUTDOWN

The SPSC consulted the experiments about the impacts on their programmes by the various scenarios for the long LHC shutdown.

The committee is concerned by delays on the PS, AD and SPS physics programme which would be inferred by an LHC shutdown extended up to the end of 2014.

The committee recommends that all efforts are made to provide injector running to the fixed target experiments in 2014, e.g. for the first Drell Yan data taking of the COMPASS experiment, for the Argon run for NA61 and for the first physics run of the NA62 experiment.

9. DOCUMENTS RECEIVED

- Minutes of the 101st Meeting of the SPSC held on Tuesday and Wednesday, 5-6 April 2011, CERN-SPSC-2011-019; SPSC-101. – 2011;
- Letter of Intent for a Demonstration Experiment in Proton-Driven Plasma Wakefield Acceleration, CERN-SPSC-2011-020; SPSC-I-240. – 2011;
- Dual-Readout Calorimetry for High-Quality Energy Measurements, CERN-SPSC-2011-021; SPSC-SR-086. – 2011;
- ICARUS Report to the June 2011 meeting of SPS-C, CERN-SPSC-2011-023; SPSC-SR-087. – 2011;
- COMPASS Status Report 2011, CERN-SPSC-2011-024; SPSC-SR-088. – 2011;
- COMPASS 2012 Beam Request, CERN-SPSC-2011-025; SPSC-M-774. – 2011;
- OPERA status report, CERN-SPSC-2011-026; SPSC-SR-089. - 2011.

CERN Document Server (CDS):

<http://cdsweb.cern.ch/search?sc=1&p=SPSC+2011>