CERN RESEARCH BOARD

MINUTES OF THE 192nd MEETING OF THE RESEARCH BOARD
HELD ON WEDNESDAY 2 JUNE 2010

Present


Apologies

P. Bloch, M. Ferro-Luzzi, S. Myers

Items

1. Procedure
2. Report from the SPSC meeting of 13-14 April 2010
3. Report from the LHCC meeting of 5-6 May 2010
4. Any other business
1. PROCEDURE

1.1 The minutes of the last meeting [1] were approved without modification. There was one matter arising from the minutes, listed in the following paragraph

1.2 S. Bertolucci discussed the status of the ELENA proposal for an upgrade of the AD. This had been previously discussed at the Research Board meeting of 2 December 2009, at which time a decision on approval was deferred to the current meeting. However, since then the design of the ELENA ring has evolved, in particular through the incorporation of the possibility of slow extraction. A second modification has resulted from the change of location of ELENA in the experimental hall, to reduce interference with the existing AD experiments, and to facilitate the long-term exploitation of the upgrade. These changes have led to an increase in the cost estimate, however slow extraction is a feature that is not required by the currently foreseen experiments that would make use of ELENA. R. Heuer commented that an updated proposal should be submitted before a decision can be made on approval. The Research Board recommends that the possibility of slow extraction is no longer included in the ELENA design; its position in the hall should be decided, bearing in mind the long term nature of this upgrade, and an updated proposal should then be submitted.

1.3 R. Heuer brought the attention of the Research Board to the recent observation of a tau-decay candidate by OPERA in the data provided by the CNGS muon-neutrino beam. He also mentioned the excellent progress being made by the LHC and its experiments. Finally he pointed out that there was no report from the INTC on the agenda, since there had not been an INTC meeting since the last Research Board meeting; however, he wished to communicate that CERN was participating in a bid for the International Nuclear Physics Conference to be held in Geneva in 2013. The Research Board took note.
2. REPORT FROM THE SPSC MEETING OF 13-14 APRIL 2010

2.1 C. Vallee reported on the latest meeting of the SPSC [2], including the annual review of DIRAC. The SPSC noted that analysis of the 2001-2003 data is still ongoing, and urges the collaboration to publish rapidly the $|a_0 - a_2|$ measurement based on these data, and to proceed with the analysis of the more recent data sets in a timely fashion. The Research Board noted that a recommendation concerning a run of DIRAC in 2011 will depend on the results first being presented from data taken in 2008-9.

2.2 C. Vallee then discussed the annual review of the CLOUD experiment, studying the correlation between ionizing particles and cloud nucleation. The experimental chamber was successfully installed in 2009, and data taken. The nucleation rate is expected to be published soon as a function of $H_2SO_4$ concentration and humidity. Further running is planned for this year, at temperatures down to $-30 \, ^\circ C$. The Research Board notes with pleasure the prompt production of results by CLOUD from the additional running time that was exceptionally granted last year, and notes that these results should follow the appropriate approval process at CERN before publication.

2.3 The NA63 experiment is devoted to the investigation of electromagnetic processes in strong crystalline fields. The SPSC notes with pleasure their publication of a measurement of the thickness dependence of the electromagnetic LPM effect, and the timely progress towards publication of the other measurements made so far. The experiment will run for about a week this year to clarify LPM suppression at low $Z$. An addendum to the proposal had been submitted [3], concerning the study of the magnetic suppression of radiation emission from an amorphous foil, for which a two week run is requested in 2011. A second proposed measurement concerns the bremsstrahlung emission from relativistic heavy ions. The SPSC supports the first study, but notes that the second measurement could interfere with the rest of the fixed-target programme, and recommends that the practical feasibility of such a run should first be further investigated. The Research Board approved the two week run of NA63 in 2011 for the study of magnetic suppression, and will wait for a recommendation from the SPSC concerning the second measurement.
2.4 The DREAM collaboration have been performing test-beam studies at CERN over recent years towards improved calorimetry, via the event-by-event determination of the electromagnetic shower fraction by means of the simultaneous measurement of ionization and Cherenkov light. They have submitted a document [4], requesting a quasi-permanent set-up in a CERN beam line for their continuing studies, for about four weeks of beam time per year over the next few years. The SPSC requests a more detailed document concerning the technical aspects of the request. The value of their R&D work is recognized, but such quasi-permanent installations will decrease the flexibility of test beam for other users. R. Heuer commented that for the approval of this sort of test-beam installation, a Memorandum of Understanding would be required. The Research Board invites the DREAM collaboration to submit a proposal to become an R&D experiment. Unlike the other RD experiments that are monitored by the LHCC, their progress would continue to be monitored by the SPSC.

3. REPORT FROM THE LHCC MEETING OF 5-6 MAY 2010

3.1 T. Wyatt reported on the latest meeting of the LHCC [2]. There had been open session presentations on the status of the experiments, as well as the physics prospects for the current run. The experiments and the LCG were ready for the first 7 TeV collisions. They collected good quality data at 900 GeV and 7 TeV, with operating efficiency 80–95 %, and continue to make excellent progress with trigger commissioning, alignment, calibrations and detector performance studies. They can already show remarkable agreement between data and simulation in many areas, and have produced first physics publications. The LHCC congratulates ALICE, ATLAS, CMS, LHCb, LHCf and the LCG on these achievements. The committee encourages the experiments to make early preparations for running with multiple p-p interactions per crossing, and encourages early studies of running with a crossing angle. P. Collier commented that $1.2 \times 10^{11}$ protons per bunch had been successfully injected into the machine and ramped. Work is in progress on the machine protection system to allow more bunches to be injected. The Research Board congratulated those working on the LHC
machine, experiments and computing on the efficient start up and the speed at which high quality results have been produced.

3.2 T. Wyatt then presented some personal highlights from the results that had been presented by the experiments, and listed the items that the committee will be watching [2]. The cooling plant for the ATLAS inner tracker evaporative cooling system requires constant attention, and the design of long-term replacement is well underway. The LHCC strongly supports this initiative (and the allocation of the necessary funds). Concerning LHCb, T. Wyatt considers it essential that the capability of reversing the dipole magnet polarity is maintained even after LHC moves to operations with a crossing angle, and P. Collier commented that although this is a complication, work is in progress to ensure that it will be possible. The LHCC noted that LHCb can perform a significant fraction of its physics programme with 1 fb$^{-1}$ at 7 TeV, and recommends that every effort be made to ensure that the choice of LHC operation strategy does not adversely affect the delivery of luminosity to LHCb. The Research Board took note.

3.3 During this year’s run the T2 detector of TOTEM suffered from data corruption problems, and the Roman Pots were not yet inserted. The LHCC looks forward to seeing a comprehensive set of detector performance plots for T2 and the Roman Pot detectors at its next meeting. Concerning the T1 detector, one side is ready for installation, the other will be prepared over next few months and will be put in a test beam. For its next meeting the LHCC looks forward to receiving a written report on a joint CMS/TOTEM technical assessment of T1 installation, to be discussed at a joint meeting between CMS, TOTEM and their LHCC referee teams. The Research Board took note.

4. ANY OTHER BUSINESS

4.1 The proposed adjustment to the approval process for new experiments or for changes in accelerator operation, which had been presented by P. Collier at the previous meeting, was discussed further. It was decided that the members from the accelerator
and technical sectors of CERN who already attend the scientific committee meetings will be asked to report at the Injectors and Experimental Facilities Committee (IEFC). The IEFC will trigger an assessment of the resource implications of new proposals at the appropriate time, before the recommendation from the scientific committee is presented to the Research Board.

4.2 The next meeting of the Research Board, previously foreseen on 1 September, has been rescheduled to take place on 8 September. H. Breuker will act as scientific secretary for that meeting.

ENCLOSURES

1. Draft Minutes of the 96th SPSC meeting held on 13-14 April 2010 (SPSC-2010-016/SPSC-096).
2. Draft Minutes of the 101st LHCC meeting held on Wednesday 5-6 May 2010 (LHCC-2010-008/LHCC-101).

REFERENCES

[2] Copies of the transparencies are attached to the agenda: http://indico.cern.ch/conferenceDisplay.py?confId=94813