MINUTES OF THE 151st MEETING OF THE RESEARCH BOARD
HELD ON THURSDAY, 15 FEBRUARY 2001


Apologies:  K. Königsmann,

Items
1. Procedure
2. Reports and matters arising from the INTC Meeting of 27 November 2000
3. Reports and matters arising from the SPSC Meeting of 23 January 2001
4. Reports and matters arising from the LHCC Meetings of 29-30 November 2000 and 31 January -1 February 2001
5. Any other business
1. PROCEDURE

The Director General welcomed M. Hauschild, the new PS/SPS coordinator and P. Frandsen, the new Staff Association representative. Patrick Janot’s term as LEP coordinator having come to an end, the Director General also expressed the appreciation of the Research Board for Patrick’s extensive commitment, dedication and enthusiasm during his term of office.

The Minutes of the Research Board held on 23 November 2000 [1] were approved with the following changes:

Cover page … E. Chiaveri and S. Weisz should be deleted from the list of participants.

Page 1 line 19….immersed in sea water…

Page 3 line 13…Decisions on the two addenda from …. 

2. REPORT AND MATTERS ARISING FROM THE INTC MEETING OF 27 NOVEMBER 2000

H. Flocard reported on the INTC meeting held on 27 November 2000. He first reported on the commissioning of nTOF. It operated during November at an intensity of 7% nominal, although some tests at the full $7 \times 10^{12}$ protons/pulse were performed. The target behaved correctly and measurements of the collimation of the beam on target, of the neutron beam energy distribution and energy resolution and of the background were performed. An impressive plot showing the energy distribution of neutrons transmitted through a gold target clearly shows a dip at 60.3 eV, the energy of the $^{197}$Au resonance. From this an upper limit on the resolution of $< 0.1$ eV can be deduced. The preliminary conclusions are that the Facility is behaving as expected and that the completion of the commissioning will require 10 days in April of this year.

He then presented the Technical Design Report on the nTOF Measuring Station [2]. This report includes an update of the previous information on the project. The simulation work by the Collaboration and the Measuring Station are described as well as the various detectors used for mapping the background, monitoring the beam and measuring the capture and fission cross-sections. The conclusions of the INTC are that all the questions raised by the referees have been answered and that the TDR represents an extensive and up-to-date document.

Flocard also mentioned that a report on Data Evaluation and on the dissemination of information to international data bases is expected by the end of the year. In answer to a
question by D. Miller, Flocard informed the Research Board that, in accordance with previous agreements, all experiments will only be approved after peer review and that all results will be included in open data bases.

Noting that the TDR did not include a list of authors, the Research Board requested that such a list be produced as an addendum.

The Research Board concurred with the INTC acceptance of the TDR.

The Research Board congratulated the nTOF teams for the impressive progress in the commissioning.

The chairman of the INTC then discussed the Technical Report on ISOLDE presented at the INTC. The Global Consolidation Plan is in progress. It involves improvements in radiation safety, targets, sources, separators, beam transport, instrumentation and control systems. After a steady decline in available shifts in previous years, an increase to 350 shifts was achieved in 2000, the goal being 400. The Scientific Report also presented at the INTC described the sharing of the ISOLDE time between the various disciplines. A total of 39 experiments ran in 2000, performed by 270 users from 77 Institutes and 22 countries.

The chairman of the INTC then presented proposal **P133**, on Radiotracer spectroscopy on group II acceptors [3]. This experiment intends to understand GaN doping. This material is attractive since it has many potential industrial applications: superbright LED’s, laser printers, storage on CD’s. The INTC recommended this proposal for approval for 16 shifts. The Research Board concurred with this recommendation. The experiment will be known as **IS391**. The Research Board pointed out that the obvious technology transfer implications of this experiment required careful monitoring.

The chairman of the INTC then presented, together, proposal **P132**, Study of Colossal Magnetoresistive Oxydes with Radioactive isotopes [4] and **P86 Add. 1 (IS360)**, Studies of High Tc Superconductors Doped with Radioactive isotopes [5]. These two experiments have a large overlap in their proponents and use similar techniques. The INTC recommends approval of P132 for 26 shifts. The Research Board concurred with this recommendation. The experiment will be known as **IS390**. The INTC also recommended an allocation of 13 shifts for P86 Add.1, to be used mostly on the study of Infinite Layers Cuprates. The Research Board took note of this extension of IS360.

The last experiment presented by Flocard was **P113 Add. 1 (IS378)**, Decay study of the very neutron-rich Sn nuclides, $^{135-140}$Sn, separated by selective laser ionization [6]. In view of the impact of these measurements both on nuclear structure and on astrophysical
nucleosynthesis studies, the INTC approved an allocation of an additional 15 shifts to this experiment. The Research Board took note.

3. REPORT AND MATTERS ARISING FROM THE SPSC MEETING OF 23 JANUARY 2001

In the absence of K. Königsmann, C. Détraz reported on the meeting of the SPSC held on 23 January 2001. He informed the Research Board of the progress achieved on the AD. The Research Board expressed its appreciation to the PS division. However J-P. Delahaye reminded the Research Board that the start-up had been delayed by 10 months and that the complexity of the AD project had been underestimated. Indeed 30 F.T.E had to be allocated to the project instead of the 9 originally foreseen (although this number is now down to 15). In addition the agreement whereby the experiments would provide and pay three operators is proving to be inefficient in the long run. The reason is that the operators are employed for three years, that training takes a significant part of this time and that the high turnover creates problems. He suggested that an alternative scheme be investigated. Détraz commented that these problems should be studied in the general context of the AD becoming a facility in the same way that other projects did (or will) after starting off as experiments.

C. Détraz reported on the request by NA57 for more proton reference data at 40 GeV [7]. This is motivated by the observation of increased strange particle production at high energy possibly explained by “democracy among quarks” in the framework of quark deconfinement. The effect seems to disappear for less frontal collisions. The SPSC recognized the scientific justification of this request but also noted that it was in conflict with CMS calorimeter tests.

M. Hauschild, the PS/SPS coordinator, then reported to the Research Board that a satisfactory resolution of this conflict was achieved. This was based on the reduction of the NA57 request from 6 to 4 weeks (more protons delivered per week are anticipated in 2001), the relinquishing of 3 weeks by CMS and the relocation of the BETS experiment to the H2 line. The Research Board supported this proposal.

C. Détraz informed the Research Board that the INFN Commissione II as well as the INFN Directorate had now approved the OPERA experiment. Since the Research Board had already recommended OPERA at its 148th Meeting [8], it now remained for the CERN directorate to formally approve it in compliance with the CERN-INFN agreement for the scientific use of CNGS. It was anticipated that this would happen the following day. The experiment will be referred to as CNGS1.

J. Engelen reported on the meetings of the LHCC held on the 29-30 November 2000 and 31 January - 1 February 2001.

He first presented the LHCb Calorimeters and RICH Technical Design Reports. The Calorimeters TDR [9] describes the Scintillator Pads Detector (SPD), the Pre-Shower (PS), the Electromagnetic Calorimeter (ECAL) and the Hadron Calorimeter (HCAL). The SPD and PS use scintillator pads read by wave-length-shifting fibres. The ECAL is a lead-scintillator device using the shashlik technology and the HCAL is an iron-scintillator detector with tiles parallel to the incident particles. The combination of these detectors allows discrimination between photons, electrons and hadrons. The HCAL also capitalizes on the high transverse momentum of charged pions originating from the $B^0 \to \pi^+ \pi^-$ decay in order to provide a trigger for this channel. All these detectors have to operate at 40 MHz in order to provide a Level-zero trigger. The LHCC noted that engineering details on the support structure were missing. These will have to be addressed. Furthermore the Committee recommended that a detailed plan be established for tests and calibrations in a beam. The detectors, as described in the TDR, being well suited to the physics goals of the experiment and the costs being reasonable, the LHCC recommended general approval of this LHCb Calorimeters TDR. The Research Board approved the submitted TDR under the LHCC formulation, which allows the Committee to monitor further progress of this project through the implementation of schedules and milestones listed in the ancillary document.

Engelen then presented the LHCb RICH TDR [10]. This TDR describes the technology of the different detectors needed to identify particles (in particular $\pi$-K discrimination) over the large momentum range (2-150 GeV/c) covered by the experiment. Three radiators must be used: aerogel, $C_4 F_{10}$ and $CF_4$. The photon detectors for these counters remain a critical item. The preferred solution is currently a Pixel-HPD based on a chip developed for the ALICE tracking detector. However, the larger read out speed needed by LHCb has not yet been achieved with this chip. Multi-anode photomultipliers remain an acceptable but more expensive back up solution. The detectors, as described in the TDR, being well suited to the physics goals of the experiment and the costs being reasonable, the LHCC recommended general approval of this LHCb RICH TDR. The Research Board approved the submitted TDR under the LHCC formulation, which allows the Committee to monitor further progress of this project through the implementation of schedules and milestones listed in the ancillary document.

D. Miller pointed out the large potential applications of Pixel-HPD’s to medical imaging.
M. Delfino asked whether, given the imminence of the production phase of LHCb, any Production Readiness Reviews were planned. Engelen replied that such reviews will have to be performed before final construction begins but that the size of LHCb did not warrant the same approach as for ATLAS and CMS.

J. Engelen reported that progress had been made over the past year on the development of intrinsically radiation-hard CVD diamond tracking devices. However, in view of the attempt to increase the collection distance beyond 250 μm up from the currently achieved 200 μm and of the need to test the devices with the best radiation-hard read out chips now available, the LHCC agreed to the continuation of the project in 2001. The Research Board took note.

The Chairman of the LHCC then discussed briefly the ALICE Comprehensive Review, details of which can be found in the enclosed LHCC minutes. He reported that a workshop would be organized at CERN in the area of heavy ion collisions to bring together theorists and the LHC experiments.

5. OTHER BUSINESS

L. Camilleri presented a list of the presently Recognized Experiments at CERN. In accordance to the rules for Recognizing Experiments, they are approved for three years. It is therefore time to review the status of the first experiments that were recognized. A discussion ensued on how best to achieve this. A proposal will be made to the Research Board at its next meeting with the aim to start the review procedure at the June meeting.

The next meeting of the Research Board will take place on Thursday, 5 April 2001.
ENCLOSURES


[5] Minutes of the 50th LHCC meeting held on 31 January – 1 February 2001 (LHCC 2001-003/LHCC 50 rev.)

REFERENCES


[6] Decay study for the very neutron-rich Sn nuclides, $^{135-140}$Sn separated by selective laser ionization (INTC 2000-037/P113 Add.1).


