

**LHCb****6 May 2014**

**Minutes of the 32nd LHC Resource Review Board Meeting
(CERN, Geneva, 30th April 2014)**

Present

A. K. Maciel (RENAFAE, Brazil)
Y. Zhang (National Natural Science Foundation of China, China)
U. Bassler, R. Le Gac (CNRS/IN2P3, France)
R. Feldmann (Federal Ministry of Education and Research, BMBF, Germany)
H. Mahlke, M. Groll (BMBF/DESY-PT, Germany)
U. Uwer (University of Heidelberg, Germany)
F. Bedeschi (INFN – Sezione di Pisa, Italy)
G. Passaleva (INFN – Sezione di Firenze, Italy)
F. Linde (NIKHEF, The Netherlands)
F.D. Buzatu (Institute of Atomic Physics, Bucharest, Romania)
S. Salikhov (Ministry of Education and Science, Russia)
V. Shevchenko (Kurchatov Institute, Russia)
V. Savrin (Moscow State University, Russia)
F. del Aguila ((Ministry of Economy and Competitiveness, Spain)
E. Grauges (Universitat Barcelona, Spain)
P. Fischer (Swiss National Science Foundation, Switzerland)
O. Schneider (EPFL Lausanne, Switzerland)
G. Zinovjev ((Bogolyubov Institute for Theoretical Physics, Ukraine)
G. Blair (STFC, United Kingdom)
A. Medland (STFC, United Kingdom)
C. Parkes (University of Manchester, United Kingdom)

LHCb

P. Campana, C. D'Ambrosio, R. Forty, R. Lindner, M. Pepe-Altarelli, B. Schmidt,
A. Schopper, G. Wilkinson

CERN

S. Bertolucci, C. Decosse, T. Lagrange, J. Salicio Diez, E. van Herwijnen (Scientific Secretary), E. van Hove

Scrutiny Group

C. Touramanis, E. Iacopini, D. Vilanova

Excused

S. Gonzalez (National Science Foundation, United States of America), J. Królikowski (University of Warsaw, Poland), A. Zoccoli (INFN, Italy), R. Heuer, S. Lettow, E. Tsismelis (CERN)

Documents can be found in the RRB Indico pages; accessible via the LHC-RRB home page <http://cern.ch/committees/all/welcomeLHCRRB.html>

1. Introduction. S. Bertolucci, Director of Research and Scientific Computing.
S. Bertolucci welcomed delegates to the LHCB LHC Resource Review Board.

2. Approval of the minutes of the last meeting. S. Bertolucci, Director of Research and Scientific Computing.

CERN-RRB-2013-132

The minutes of the last RRB meeting were approved without comment.

3. Status of the experiment and of the LHCb Upgrade. P. Campana, spokesperson
CERN-RRB-2014-031, CERN-RRB-2014-032 (slides)

In summary:

- LHCb is actively preparing the 2015 data taking to profit of the nearly doubled cross section for charm and beauty
- Several important physics results obtained (on 1/fb and on 3/fb samples) and many more to come on benchmark flavor physics observables (and not only)
- Important upgrade milestones achieved on time: 2 TDRs approved, one under LHCC review, another in preparation. The shape and the cost of the upgrade is now defined
- The upgraded detector will be able to sustain a luminosity of $2 \cdot 10^{33} \text{ cm}^{-2} \text{ s}^{-1}$, reading out events at 40 MHz, and process them in the farm, with superior tracking capabilities and PID performance similar to the one available today
- To achieve this target, the support in resources at a level close to that requested by your LHCb groups is mandatory. With the new LHC schedule, the resources can be spread up to 2020. We hope this can help in positive answers from FAs
- Signatures requested for MoU on Common projects in coming months
- P. Campana's work (as SpokesPerson) has nearly come to its end, after 3 very dense years and he expresses his thanks to the FAs for their support and help.

P. Campana having arrived at the end of his mandate as LHCb spokesperson, S. Bertolucci, interpreting the sentiments of the RRB, said that it had been a pleasure working with him and thanked him for his contributions.

F. Bedeschi asked for a clarification on the sequence of MoUs. He felt that asking the FAs to sign the MoUs on the common projects before the money matrix for the construction had been determined was the wrong sequence. S. Bertolucci replied that the common projects fluctuate less because the common infrastructure part is very difficult to debate. LHCb is being scrutinized by the UCG and the LHCC and the MoUs cover the first funds needed by the collaboration. Other experiments, for example ATLAS and CMS, have also circulated their common fund MoUs for the Phase 1 upgrade after a global money matrix has been outlined. There is a global matrix for the LHCb expenses which is not yet complete because as P. Campana has said there are still a few TDRs under scrutiny. There is already a commitment from a number of FAs participating with LHCb and more will come next month. Since this upgrade has to be ready by Run 3 we should not wait too long for signing the MoUs. P. Campana added that the signature of the various FAs for Addendum No. 1 will be spread out over time but that at least an informal commitment is needed that all the FAs

understand the numbers of the Common Fund and agree on the principle of the upgrade. The important thing is that each FA knows that this is what informally all the others have agreed.

A. Medland thanked P. Campana for his informative presentation from which he sensed the excitement in the experiment. He remarked that having a single Addendum which addresses the construction TDRs is very helpful from the point of view of the FAs because they then see it all at the same time. He noticed the reduction of reliance on the Tier-1s and remarked that this is a good strategy as it brings in other resource opportunities which are available at Tier-2s and it also reflects the excellent performance of the LCG and the advances in networking. The outcome of the STFCs programmatic review has been very good for LHCb, having been upgraded as an alpha-5 experiment which is the UK's highest scientific category. However there are still challenges as there are two other LHC detectors who are also alpha-5 categorised and this puts pressure on the available funding envelope. The STFC is working through their internal approval processes and hopefully are keeping LHCb informed on how that is evolving. Having a clear prioritization will be helpful. P. Campana replied if the major FAs commit around June LHCb will be able to give the money matrix that F. Bedeschi was asking for in October. There have been cases in the past where an incomplete money matrix did not prevent us from going ahead.

F. Linde said that the verdict from the Netherlands will come in mid-June satisfying the time constraint, hopefully with a positive outcome.

U. Bassler thanked P. Campana for the useful and constructive discussions and also the Collaboration for their nice work and for the upgrade, proposing detectors of an astonishing performance. As far as the French situation is concerned, the numbers that haven been given are ceiling values, i.e. upper limits of what they are committing to, but they do not have any assurance yet from the ministry about the full extent of this money. They hope to get a firm commitment before this summer. She asked whether LHCb have a plan on how to get the missing 20% if they were to start the upgrade with 80% of the resources. P. Campana replied that the problem of a possible missing 20% will be addressed in the Addenda of the TDRs. For example in the case of the Rich, if there is a shortage of money the buying of the phototubes could be delayed, since this affects the operation but does not affect the construction because you can add phototubes even during a technical stop. However, if the shortage would imply a missing part of the detector this would be much more complex.

4. LHCC Deliberations (paper only). S. Bertolucci, Director of Research and Scientific Computing (replacing E. Tsesmelis, LHCC Scientific Secretary).
CERN-RRB-2014-034

The LHCC acknowledges the impressive production of physics by LHCb and the fact that LHCb is doing well with LS1 and with the rapid progress of the upgrade proposals. The LHCC congratulates the Collaboration for their impressive achievements and is looking forward to the next steps.

5. Financial matters. T. Lagrange, Head of CERN Finance and Procurement Department
CERN-RRB-2014-035, CERN-RRB-2014-036 (slides)

Additional contributions received since March 1st: 450K CHF from the different countries and institutes. This leaves as outstanding contributions for the member states 940K CHF before 100K CHF still from Spain and 840K CHF from 2014. Non-member states

outstanding 670K CHF. Half of the contributions have been paid which is a good situation for not even half of the year.

There were no questions arising from this presentation.

6. Budgets. C. D'Ambrosio Resource Coordinator.

CERN-RRB-2014-039 (slides), CERN-RRB-2014-037, CERN-RRB-2014-038

There were no questions arising from this presentation.

8. Summary. S. Bertolucci, Director of Research and Scientific Computing.

There being no further business, S. Bertolucci thanked the delegates and closed the meeting.

The proposed dates for the next RRB are 13-15^h October 2014.