



LHCb

11 March 2013

**Minutes of the 29<sup>th</sup> LHC Resource Review Board Meeting  
(CERN, Geneva, 31<sup>st</sup> October 2012)**

**Present**

A. Maciel (RENAFAE, Brazil)  
L. Serin (CNRS/IN2P3, France)  
E. Aslanides (CNRS-IN2P3/CPPM Marseille, France)  
K. Ehret (DESY/BMBF, Germany)  
H. Prasse (Federal Ministry of Education and Research, Germany)  
A. Zoccoli (INFN - Sezione di Roma, Italy)  
F. Bedeschi (INFN, Italy)  
U. Marconi (INFN - Sezione di Bologna, Italy)  
G. Polok (HNIN, Polish Academy of Sciences, Poland)  
J. Królikowski (University of Warsaw, Poland)  
F.D. Buzatu (Institute of Atomic Physics, Bucharest, Romania)  
R. Muresan (IFIN-HH National Institute of Physics and Nuclear Engineering, Bucharest, Romania)  
A. Petrov (Permanent Mission of Russia in Geneva)  
V. Savrin (Moscow State University, Russia)  
F. del Aguila (Universidad de Granada, Spain)  
B. Adeva (Universidade de Santiago de Compostela, Spain)  
O. Schneider (CHIPP, Switzerland)  
A. Medland (STFC, United Kingdom)  
C. Parkes (United Kingdom)  
S. Gonzalez (National Science Foundation, United States of America)

**LHCb**

P. Campana, C. D'Ambrosio, R. Forty, R. Lindner, M. Pepe-Altarelli, B. Schmidt, A. Schopper, T. Gershon

**CERN**

S. Bertolucci, S. Foffano, S. Lettow, R. McLaren, C. Saitta, J. Salicio Diez, E. van Hove

**Scrutiny Group**

E. Iacopini, B. Loehr, C. Touramanis

**Excused**

P. Bloch, F. Hemmer, E. Tsesmelis, U. Straumann (LHCb), F. Linde (NIKHEF, Netherlands)

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 meeting of the LHCb LHC Resource Review Board

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

The minutes of the last RRB CERN-RRB-2012-063 were approved without comment.

**Formal Agreement on Implementation of the New Operating Arrangements.**

Sergio Bertolucci. CERN-DRC-2012-043 (letter)

S. Bertolucci asked the delegates to approve the Implementation of the New Operating Arrangements as communicated in the above letter. Several Funding Agencies had requested signed letters and these would be sent. No objections were raised and the proposal was accepted.

**3. Status of the LHCb experiment.** P. Campana, spokesperson

CERN-RRB-2012-106 (report), CERN-RRB-2012-119 (report). The presentation is available via the RRB agenda page.

P. Campana's presentation focussed on five main areas:

- LHCb running in 2012; the detector was ageing well under control
- Trigger, HLT and computing
- Selected highlights of recent results
- The LHCb Upgrade
  - Plans
  - The formal steps
  - The Framework TDR
  - The Addendum for Common Items
  - Interactions with HL-LHC coordination group
  - LHCb detector modifications for the upgrade (for each detector)
  - Cost estimate (CORE)
  - Group's interests (Detector/subsystem/Countries)
- Collaboration matters

He concluded that:

- Thanks to LHC performances and luminosity leveling technique, LHCb has collected over  $1 \text{ fb}^{-1}$  in the 2011 run,  $1.7 \text{ fb}^{-1}$  so far in 2012 - and is planning to more than triple the statistics
- World best measurements on several channels:

$B_s \rightarrow J/\psi \phi$ ,  $B_s \rightarrow \mu\mu$ ,  $B_d \rightarrow K^* \mu\mu$ ,  $B_s$  mixing and charm physics. Many new physics results under preparation (HCP 2012)

- First LHCb measurement on CKM angle  $\gamma$
- LHCb is complementing ATLAS & CMS searches for New Physics and the chance of having it at a high mass scale is relevant
- The LHCb upgrade will contribute significantly to a full exploitation of LHC and to increase the opportunities of New Physics discovery in the next decades
- First steps for the Upgrade successfully completed. TDRs planned for late 2013

*L. Serin enquired as to whether the physics case for proton-ions was discussed and approved at the LHCC. P. Campana replied that had been presented in the October 2011 RRB (CERN-RRB-2011-103).*

*L. Serin also asked what fraction of the 55 MCHF Upgrade cost was covered by the various Funding Agencies and whether this information was available in a summary table. P. Campana replied that the discussions with the Funding agencies were ongoing. Since the final choice of technology was unclear it was difficult to link sub-detectors to Institutes. L. Serin was of the opinion that it was important to have a summary table for the next RRB.*

*A. Zoccoli congratulated LHCb for their results and asked for a summary of the physics goals for the Upgrade. P. Campana cited several documents (CERN-RRB-2012-119 – Table 1 and documents submitted to the European Strategy Group LHCb-PUB-2012-009 which make the physics motivation for the Upgrade. T. Gershon added several more measurements to the list, justifying the Upgrade and emphasizing the unique level of precision which can be achieved at LHCb.*

*A. Zoccoli stated that the budget of 55 MCHF was difficult to support. What there a strategy in case necessary funding level was not achieved? For example, could the Upgrade be staged? P. Campana replied that it was difficult to stage as all detectors must run at 40 MHz; however new CPUs/GPUs could help. Also the financial time plan could be adjusted to accommodate the Funding Agencies.*

*A. Zoccoli asked for the timescales for a picture of the Financial situation, P. Campana answered that INFN and the UK have reviews in the Spring. A Financial plan should be available for the October RRB.*

**4. LHCC Deliberations** (paper only). S. Bertolucci, Director of Research and Scientific Computing (replacing E. Tsesmelis, LHCC Scientific Secretary). CERN-RRB-2012-113 (report)

S. Bertolucci reported that the LHCC considers that LHCb has made excellent progress in all aspects of the experiment and the Committee congratulates the LHCb Collaboration on its achievements.

Both the detailed physics case for the upgrade and the Framework Technical Design Report (TDR) have been endorsed by the LHCC.

**5. Financial matters.** C. Saitta, CERN Finance and Procurement Department

CERN-RRB-2012-111(report), CERN-RRB-2012-112 (presentation)

C. Saitta presented the updates to the above report.

Outstanding contributions for the Common fund are 13.7 kCHF.

Additional contributions for M&O-A amounting to 177 kCHF had been received from Switzerland (Zurich) and Russia.

Outstanding contributions for M&O-A stand at 331 kCHF from member states and 543 kCHF from non-member states.

*There were no questions arising from this presentation.*

**6. Budgets.** C. D'Ambrosio, Resource Coordinator.  
CERN-RRB-2012-108 (report), CERN-RRB-2012-109 (presentation)

D'Ambrosio reported that most of the Core spending came to an end in 2006. Purchasing for DAQ and data storage continued throughout 2010 with the DAQ – FARM completion. No additional requests for funds were presented to the RRB. 300 kCHF is still uncommitted at present (August 2012).

In view of the long shutdown in 2013 – 14 and of the foreseeable important interventions on sub-detectors and on general safety and infrastructure, he had asked (see CERN-RRB- 2010-040 and -115) for an extension of the Common Funds lifetime to year 2013.

He presented the Common Funds situation at end of August 2012, with details of the individual detectors systems and commented that spending from Common Funds is limited now essentially to Infrastructure.

The amount seen for “VELO NON CORE” is the result of the VELO-spare programme. This programme is financed using the M&O Cat.A framework and will end in 2013; a total amount of 500 kCHF.

Turning to M&O-A, about **83%** of the expected contributions for M&O Cat.A in 2012 had been received. That is a total of ~2.3 MCHF (including Velo spare and Power). Together with the carryover of funds and a few late payments from 2011, these contributions have ensured that there have been no cash flow problems.

C. D'Ambrosio presented the Category A M&O status for year 2012, with a breakdown by sub-system. After a reminder of the basic principles of M&O Cat. A policy, he gave a updated M&O A forecast (without VELO and Power) for 2008-2016 demonstrating a relatively constant budget since 2009.

The Resource Coordinator reminded the delegates of the approved 2012 budget and unveiled the proposed 2013 Category A M&O Budget

For M&O-B, C. D'Ambrosio gave the Requested Cat. B M&O 2012 budget, with a list of projects and Funding Agencies. He also presented M&O Cat. B requests for 2010-2012 and a projected preliminary for 2013-2016.

C. D'Ambrosio concluded that

- It is not easy to balance a constant budget in years, but our impression is that we are managing.
- Due to our extreme running conditions, aggressive physics programme and somewhat changeable LHC schedule, our priority remains to preserve our resources and insure maximum efficiency.
- Cat.A and Cat.B funded resources are prepared for LS1. The list of planned activities is impressive. We dare to go through this with essentially no budget increase.
- Cat.B funds and resources are healthy and, as long as the commitment and the results are present, we are of the opinion that our sub-detector projects should still be in charge and that the specific national process of fund raising, to which all are subjected, should not be disturbed.

*A. Zoccoli asked whether, for M&O B, it would be possible to provide a table of due amounts for each project and Funding Agency. C. D'Ambrosio drew his attention to slide 15 of his presentation.*

*The RRB endorsed the budget proposal.*

**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 15<sup>th</sup> -17<sup>th</sup> April 2013.*