



TOTEM

6 May 2014

Minutes of the 14th LHC Resource Review Board Meeting (CERN, Geneva, 29th April 2014)

Present:

N. Fejksová (Ministry of Education, Youth and Sports, Prague, Czech Republic)
J. Äystö (Helsinki Institute of Physics, University of Helsinki, Finland)
T. Csörgö (Wigner RCP, RMKI, Budapest, Hungary)
A. Zoccoli (INFN, Sezione di Roma, Italy)
F. Bedeschi (INFN, Italy)

TOTEM

S. Giani, E. Radicioni

CERN

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

Scrutiny Group

C. Touramanis

Excused

R. Heuer, S. Lettow (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 meeting.

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

CERN-RRB-2013-133

The minutes of the last RRB were approved with no comments.

3. Status of the TOTEM experiment. S. Giani, Spokesperson
CERN-RRB-2014-040 (slides)

The physics conclusions and outlook are:

- elastic cross-section at $\sqrt{s} = 8 \text{ TeV}$ non-exponential below $|t| \leq 0.2 \text{ GeV}^2$

- previously observed only in n-p: NA-6, Nucl. Phys. B232 (1984) 365-397
- TOTEM data exclude the centrality of elastic p-p scattering in the form it was derived via the simplified West-Yennie formalism
- combined $\beta^* = 90$ and 1000 m data will be used for study of the hadronic amplitude
- complementary total cross-section measurements at 8 TeV
 - $\beta^* = 90$ m: increased statistics, larger lever arm, better extrapolation to $t = 0$
 - $\beta^* = 1000$ m: partial Coulomb normalisation & different systematics

There were no questions arising from this presentation. S. Bertolucci congratulated S. Giani with the results of the TOTEM experiment.

4. LHCC Deliberations (paper only). E. Tsismelis, LHCC Scientific Secretary
CERN-RRB-2014-041

The LHCC report includes comments on the physics, the work ongoing for LS1 and the work for the upgrade of the TOTEM experiment. It congratulates the TOTEM experiment on its achievements and it takes note of the good progress which has been made with respect to the collaboration with the CMS experiment.

5. Financial matters. T. Lagrange, Head, CERN Finance Dept.
CERN-RRB-2014-042, CERN-RRB-2014-042 (slides)

More than 50% of the contributions for this year have been received which is quite good for this time of the year.

6. Status of Resources and Financial Plan. S. Giani, Spokesperson.
CERN-RRB-2014-043

In summary:

- TOTEM will review with the Scrutiny Group referees the refinements required in the projections 2015.
- TOTEM is grateful to the funding agencies for their financial contributions, to CMS for the fruitful collaboration on detectors, physics and upgrades (CERN-CMS-TOTEM Upgrade MoU signed in January 2014), and to the accelerator optics group for their continued developments.
- Upgrade plans are being iterated with the LHCC.
- TOTEM is looking forward to iterating with the Scrutiny Group on the required reviews in order to finalize the 2015 M&O budget request.

J. Äystö thanked S. Giani for a clear presentation. He enquired whether the costing of the consolidation and the upgrade will be presented at forthcoming RRBs or whether it will be covered by the existing budget. S. Giani replied that TOTEM is doing like every other experiment. The current budget covered the maintenance of the existing detectors. Special consolidation needs are covered by a special matrix of support from some of the Funding Agencies. For the upgrade, TOTEM will, together with CMS, report to the RRB. An institution board will be held on the 2nd of May, together with CMS, to describe and formalise the common project with the participating institutions. A very advanced financial matrix shared by the CMS and TOTEM institutes that describes the participating groups per project already exists. When this will be properly formalized within TOTEM and CMS it will be submitted to the LHCC and the RRB.

F. Bedeschi enquired about the approval process for the plan for an intermediate luminosity upgrade which affects only TOTEM and is not together with CMS. S. Giani replied that this project is not defined as an intermediate luminosity upgrade but that it is part of the TOTEM standalone physics program that was approved by the Research Board since the beginning of TOTEM. It can now be executed at an increased luminosity with respect to Run 1. If everything goes well with the optics of 90 m, there will be, for example, a possibility to run with 1000 bunches.

F. Bedeschi requested confirmation that this program is approved as far as CERN committees are concerned. S. Giani confirmed that it is an empowering progress of the standard TOTEM program. He added that they will profit to develop and test things that will become an essential part of the common upgrade program with CMS. For example they will rely strongly on timing detectors (vital to reach the pico second region) and will be able to test issues like clock distributions in advance using vertical pots in special runs. The key point is that the originally foreseen program of TOTEM can be significantly extended basically at no cost, opening up the spectrum of physics that can be done in special runs (accessing pico-barn cross-sections). The upgrade program has to go through the LHCC in the form of Project TDRs. Moreover, if there are no technical limitations because of problems with the machine operation and TOTEM can run at full luminosity together with CMS at the femto-barn level of cross section, the diffractive channel can be fully explored. In this case, the joint physics program with CMS will be extremely powerful.

7. 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 13-15th October 2014.