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# PRINCIPAL LHCC DELIBERATIONS

23<sup>RD</sup> MEETING OF THE LHCb RESOURCES REVIEW BOARD

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14 OCTOBER 2009

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SCIENTIFIC SECRETARY, LHCC

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**GENERAL**

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This document summarises the principal LHCC deliberations concerning LHCb at the Committee's sessions in July 2009 and September 2009.

**The LHCC considers that the LHCb experiment is in excellent shape and is ready for first LHC data and physics analysis. LHCb is preparing to record TED data in October 2009 resulting from interactions of injected beams on the beam stop in front of the LHCb detector.**

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**CONCERNS FROM THE PREVIOUS LHCb RESOURCES REVIEW BOARD**

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<b>SUB-SYSTEM</b>	<b>CONCERN</b>	<b>STATUS</b>
Outer Tracker	Gain loss observed in the straw chambers.	Preventive procedures to minimize the effects of out-gassing of the glue that leads to a gain loss in the Outer Tracker have been completed.
Ring Image Cherenkov (RICH)	Failure of some Hybrid Photon Detectors (HPDs).	The repair procedure for the HPDs is ongoing and the problematic HPDs are being replaced.
Electromagnetic Calorimeter	Noisy Cockcroft-Walton bases.	Modification of the noisy Cockcroft-Walton bases of the Electromagnetic Calorimeter photomultiplier tubes has been completed and the noise issues have thus been resolved.
Silicon Tracker	Broken bonds on modules.	The problem of broken bond wires has been observed. Spares are being prepared and replacement of modules can be performed during a short access.

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**STATUS OF THE EXPERIMENT SUB-SYSTEMS**

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The LHCb detector is well prepared for the start of LHC data taking. The status of the hardware is excellent, with the Collaboration having taken advantage of the long shutdown to consolidate the detector in all areas. Good progress was reported on all sub-detectors and all sub-detectors are fully operational with a channel count exceeding 99%.

## **RING IMAGE CHERENKOV DETECTORS (RICH)**

The RICH detectors are fully operational. The main long-term issue is with the development of high-ion currents in some Hybrid Photon Detectors (HPDs). The repair procedure for the HPDs is ongoing and the problematic HPDs are being replaced.

## **SILICON TRACKER**

The problem of broken bond wires has been observed. Spares are being prepared and replacement of modules can be performed during a short access.

## **OUTER TRACKER**

Preventive procedures to minimize the effects of out-gassing of glue that could potentially cause a gain loss in the Outer Tracker have been completed. The Outer Tracker gas system has been modified to allow for additives that can further mitigate the problem.

## **CALORIMETER**

Modification of the noisy Cockcroft-Walton bases of the Electromagnetic Calorimeter photomultiplier tubes has been completed and the noise issues have thus been resolved.

## **MUON SYSTEM**

The Muon System is fully operational after the completion of the M1 Station installation and commissioning.

## **TRIGGER AND DAQ**

The LHCb Trigger and DAQ are ready for the start of the LHC. The read-out of every LHCb sub-detector at a 1 MHz frequency has been tested successfully.

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## **COMPUTING AND SOFTWARE**

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Good progress was reported on the computing, with no major issues having been identified. The LHCb physics software is well-organized and effective. Global reconstruction has been ready since spring 2008 and has been used on cosmic-ray and TED beam stopper data.

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## **PHYSICS PLANS**

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The LHCb plans for early physics running at the LHC are well advanced. Initially, the focus will be on technical runs to commission the L0 trigger, alignment and calibration, physics objects and the streaming strategy. Subsequently, and with low luminosity, the High Level Trigger will be deployed and reconstruction and analysis algorithms will be commissioned. Thereafter, with 100-200 pb<sup>-1</sup> of data collected at a centre-of-mass energy up to 10 TeV, studies will be performed in all core B-physics analyses.