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PRINCIPAL LHCC DELIBERATIONS

21ST MEETING OF THE LHCb RESOURCES REVIEW BOARD

12 NOVEMBER 2008

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GENERAL

This document summarises the principal LHCC deliberations concerning LHCb at the Committee's sessions in May, July and September 2008.

The LHCC congratulates the LHCb Collaboration for successfully completing the installation of the detector and for preparing the experiment and the entire data chain for first LHC beams. The completion of the very complex and numerous tasks was made possible by the outstanding planning and efficient implementation by the LHCb Collaboration.

CONCERNS FROM THE PREVIOUS LHCb RESOURCES REVIEW BOARD

SUB-SYSTEM	CONCERN	STATUS
Outer Tracker	Gain loss observed in the straw chambers.	Solutions based on high-voltage training at high current, <i>in-situ</i> irradiation, flushing the detector with gas and the heating of the modules have been introduced and a significant reduction in gain loss has been obtained.
Ring Image Cherenkov	Failure of some Hybrid Photo Diodes (HPDs).	Because of the high-ion feedback rate, 20 HPDs have been exchanged and a further 10 have started showing similar characteristics and are being monitored closely.

EXPERIMENT SUB-SYSTEMS

INSTALLATION

Excellent progress was reported on the installation of the LHCb sub-systems, with the sub-systems being in a good state for the first LHC beams. The chamber installation for the M1 Muon Station is scheduled for the 2008-2009 LHC shutdown period.

VERTEX LOCATOR

The initial LHCb Vertex Locator (VELO) detector is expected to operate without any substantial loss of efficiency and spatial resolution for up to 6 fb^{-1} of data, assuming that no major beam loss event occurs. A replacement of the VELO silicon modules will allow the completion of the initial phase of LHCb data taking. Construction of replacement modules has started and the full production is expected to be complete by April 2010.

OUTER TRACKER

The cause of the gain loss of the Outer Tracker has been traced to the outgassing of Araldite glue used in the chamber fabrication and the test modules built with Tra-Bond glue show no negative effects. Solutions based on high-voltage training at high current, *in-situ* irradiation, flushing the detector with gas and the heating of the modules have been introduced and a significant reduction in gain loss has been obtained.

RING IMAGE CHERENKOV DETECTORS

The major outstanding issue is related to the Hybrid Photo Diode (HPD) read-out for the Ring Image Cherenkov detectors RICH-1 and RICH-2. Because of the high-ion feedback rate, 20 HPDs have been exchanged and a further 10 have started showing similar characteristics and are being monitored closely.

EXPERIMENT COMMISSIONING

Event samples were recorded successfully in LHCb during the cosmic-ray runs and the LHC injection tests and with first circulating beams. This has enabled LHCb to carry out a series of timing synchronisation studies and to make first attempts at measuring the detector spatial resolution.