

CERN-RRB-2009-016  
15 APRIL 2009

# PRINCIPAL LHCC DELIBERATIONS

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26<sup>TH</sup> MEETING OF THE ALICE RESOURCES REVIEW BOARD  
29 APRIL 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 ALICE at the Committee's sessions in November 2008 and February 2009.

The ALICE plan for the 2008-2009 shutdown period is reasonable, and includes a re-routing of services and the installation of additional Electromagnetic Calorimeter (EMCal), Transition Radiation Detector (TRD) and Photon Spectrometer (PHOS) modules. The Committee considers that it is realistic for ALICE to be completely ready for LHC beams in 2009.

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

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<b>SUB-SYSTEM</b>	<b>CONCERN</b>	<b>STATUS</b>
Photon Multiplicity Detector (PMD)	Concerns remain on the detector being able to meet its read-for-installation milestone.	A reduced number of PMD modules were installed for the LHC start-up. The installation of the PMD will be completed during the 2008-2009 shutdown period.
Transition Radiation Detector (TRD)	Gas leak in the wire chambers resulting in delay of TRD installation.	A reduced number of TRD modules were installed for the LHC start-up. The installation of the TRD will be completed during the 2009-2010 shutdown period.
Photon Spectrometer (PHOS)	Condensation on the PHOS requires re-design of the detector enclosure, resulting in delay of PHOS installation.	One PHOS module was installed for the LHC start-up. Three modules will be installed during the 2008-2009 shutdown. The remaining two will be installed by 2011 if funding is available for their construction.

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**STATUS OF SUB-SYSTEMS**

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**FORWARD DETECTORS**

Good progress was reported on the Zero Degree Calorimeters (ZDCs), the T0 timing detectors, and the Forward Multiplicity Detector (FMD), with no major issues been identified. Work is advancing well for the V0 detector regarding the evaluation of noise effects, the production of spares and the

completion of the monitoring software. Only 25% of the Photon Multiplicity Detector (PMD) has been installed and operational as a more performing spark protection system has been found to be necessary for the detector's safe operation. Implementation of the spark protection system is in progress and all PMD modules are expected to be ready for installation in early spring 2009.

#### **INNER TRACKING SYSTEM AND TIME PROJECTION CHAMBER**

Good progress was reported on the Silicon Drift Detector (SDD), Silicon Strip Detector (SSD) and Time Projection Chamber (TPC), with no major issues been identified. Evaluation of the cooling for the Silicon Pixel Detector (SPD) has advanced and several improvements are being carried out during the 2008-2009 shutdown period.

#### **PARTICLE IDENTIFICATION AND CALORIMETERS**

Good progress was reported on Time-of-Flight (TOF) detector with no major issues been identified. Repair work due to problems with the high voltage and gas leaks on installed super-modules of the Transition Radiation Detector (TRD) is in progress. Issues related to the final production of the TRD Multi-Chip Module (MCM) read-out electronics have resulted in the need for additional funds, the request for which is presently ongoing. One module of the Photon Spectrometer (PHOS) calorimeter was installed and operated at ambient temperature and therefore at reduced performance compared to at the nominal temperature of -20 °C. In order to avoid problems with humidity at low temperatures, an air-tight enclosure flushed with dry nitrogen is being realised and the completion of the PHOS is now advancing well.

#### **MUON SPECTROMETER**

The main issue regarding the Muon Spectrometer has been the noise in the tracking chambers of Stations 3, 4 and 5. The low-frequency noise has been eliminated with the modification of the low-voltage power supplies. The remaining 1 MHz noise was found to be originating from the grounding network in the cavern. This noise was eliminated at the source (ventilation units) and the coupling of noise to the muon chambers was reduced by proper insulation of the service structures.

#### **2008-2009 SHUTDOWN AND COMMISSIONING**

Additional modules of the TRD, PHOS and Electromagnetic Calorimeter (EMCal) will also be installed. Modification of the MINIFRAME, which carries the services to the ALICE central detector, is in progress and the MINIFRAME is scheduled to be re-installed in ALICE in early May 2009. The A-side radiation shielding, radiation plug and ventilation will be ready for beam by mid-September 2009. Global commissioning of ALICE is scheduled to start in early August 2009 and continue until first beam injection.

#### **TRIGGER AND DAQ**

Good progress was reported on the Trigger and DAQ with no major issues been identified. The DAQ / High-Level Trigger (HLT) will be completed during the 2008-2009 shutdown period.

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**TECHNICAL DESIGN REPORT ON THE ELECTROMAGNETIC CALORIMETER**

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The LHCC recommended general approval of the ALICE Technical Design Report (TDR) on the Electromagnetic Calorimeter (EMCal). The TDR was approved by the Research Board in its session of March 2009.