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PRINCIPAL LHCC DELIBERATIONS

30TH MEETING OF THE ALICE RESOURCES REVIEW BOARD

13 APRIL 2011

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GENERAL

This document summarizes the principal LHCC deliberations concerning ALICE at the Committee's sessions in November 2010 and March 2011.

The LHCC considers that ALICE has made excellent progress in all aspects of the experiment and the Committee congratulates the ALICE Collaboration on its achievements.

CONCERNS FROM THE PREVIOUS ALICE RESOURCES REVIEW BOARD

SUB-SYSTEM	CONCERN	STATUS
Silicon Pixel Detector (SPD)	Loss of pixel channels due to failures in the cooling.	Problem identified to be related to clogging in the cooling system. There is, however, no easy solution due to the inaccessibility of the Inner Tracking System and investigations are continuing. The number of failures has stabilized.
Time Projection Chamber	Trips of chambers.	Sixteen out of the 21 Time Projection Chamber (TPC) front-end cards destroyed by trips were replaced, and the nitrogen was removed from the gas mixture, resulting in a time between trips increasing by a factor of at least four.
Photon Multiplicity Detector (PMD)	Detector sparking.	The cooling system of the Particle Multiplicity Detector was upgraded, with the installation of 100 m of new pipes, and the temperature is now lower by five degrees, thus allowing smooth operation.

STATUS OF THE EXPERIMENT

SUB-DETECTORS

During the 2010-2011 Technical Stop, the Electromagnetic Calorimeter (EMCal) was completed with the addition of six modules for a total of ten. Three additional Transition Radiation Detector (TRD) modules were also installed, bringing the total to ten out of the 18 foreseen. No improvement in the cooling of the Silicon Pixel Detector (SPD) could be achieved in spite of attempts to clean the

cooling lines. Sixteen out of the 21 Time Projection Chamber (TPC) front-end cards destroyed by trips were replaced, and the nitrogen was removed from the gas mixture, resulting in a time between trips increasing by a factor of at least four. The cooling system of the Photon Multiplicity Detector (PMD) was upgraded, with the installation of 100 m. of new pipes, and the temperature is now lower by five degrees, thus allowing smooth operation. The source of the pedestal jumps observed in the Muon System was identified to be due to high occupancy bus patches; a fix was set up, but not all chambers could be accessed this time. The TRD Xenon gas was polluted by Argon, but recovery is well underway. The DAQ and Higher Level Trigger (HLT) were upgraded both in terms of hardware and software, and various other consolidation activities took place.

COMPUTING

The first pass of the heavy-ion data reconstruction was completed by mid-February 2011. The calibrations were successively improved in one-week pre-cycles, and the final production will now take about one month at CERN and FZK. Concerns regarding the available computing power and storage capacity remain, but should be somewhat alleviated by new contributions from the United States, Korea, and Mexico.

PHYSICS ANALYSIS

Physics analysis is progressing very well. Three papers on proton-proton collisions were published, one is under the Collaboration review, and another set is in preparation. A number of results from heavy-ion collisions were published (multiplicity, collective flow, high-pT hadrons, Bose-Einstein correlations HBT), and many preliminary results are available, covering a wide range of topics from quarkonia production to electromagnetic dissociation.

FUTURE PLANS

The plans for the 2011-2012 ALICE physics run include collecting reference data from proton-proton collisions at 2.76 TeV (about five days running are required and are scheduled for early 2011) and at 7 TeV. For the latter, the fraction of rare triggers will be increased from 15% in 2011 to 85% in 2012. The lead-lead run at the end of 2011 is expected to provide 30 μb^{-1}. For the heavy-ion run in 2012, reference proton-lead collisions are likely to be requested.

All steps have been taken to install additional TRD modules during the 2011-2012 Technical Stop, with at least five and possibly eight, depending on the availability of parts produced by external suppliers. The baseline plan for the 2013-2014 Shutdown is to move the Time Projection Chamber (TPC) in to its parking position and to install the Dijet Calorimeter (DCal). A thorough investigation of the Silicon Pixel Detector (SPD) cooling system will be conducted and, if needed and if the 2013-2014 Shutdown duration allows, the SPD will be removed and the cooling system upgraded.

ALICE UPGRADE

Expressions of interest for the future ALICE upgrade have been requested within ALICE, with internal refereeing to begin in April 2011. Letters of Intent should be made available in time for the upgrade forum foreseen in October 2011, and then submitted to the LHCC for review.