FKPPL Project report (2011)

Red info should be replaced by the appropriate text in black

ID: Title	ALICE MUON PROJECT					
Project Leaders	**French Group**			**Korean Group**		
	Name	**Title**	**Affiliation**	**Name**	**Title**	**Affiliation**
	Dupieux, Pascal	Dr.	LPC-IN2P3	Baek, YongWook	Dr.	GWNU & LPC-IN2P3

Funding from France within LIA

Description	Euro/unit	Nb of units	Total (euros)	Provided by: *
Sarah Porteboeuf (FKPPL meeting)			1687	IN2P3
PhD Sangun Ahn (conf. Como, Italy)			963	IN2P3
Total			2650	

Funding from Korea

Description	Won/Unit	Nb of units	Total (Won)	Provided by: **
PhD Sangun Ahn (FKPPL meeting)		1	2,400,000	NRF
Total				

Additional funding (outside LIA)	Funding from France			Funding from Korea		
	Provided by: * **	**Type**	**Euro**	**Provided by: *** **	**Type**	**Won**
	IN2P3	Y. Baek (salary)	63,600	NRF	Staying expenses	36,000,000

* For example: IN2P3, CEA. ** Korean University or Institute. *** French Embassy, STAR, PICS, other grants…

FKPPL Project report (2011)

Red info should be replaced by the appropriate text in black

Summary of 2011 activities	ALICE is the detector devoted to the Physics of heavy ion collisions at LHC. The "ALICE MUON" project in the framework of this LIA is a collaboration, between Korea and France, on the Trigger System of the ALICE Muon Spectrometer (MTR, for Muon TRigger) as well as on the Physics program with the Muon Spectrometer. The Physics program with the Muon Spectrometer is focused on open heavy flavor and quarkonia measurements, with the goal of characterizing the properties of the so-called quark gluon plasma (QGP) phase of nuclear matter at extremely high energy density. On the experimental side, the MTR is now completely installed, fully commissioned and operational. Since September 2008, the common work of run coordination (and detector expertise) for MTR has been carried out by Dr Baek, attached to the LPC Clermont-Fd but on site at CERN. This work is done in close collaboration with the MTR project leader (Dr. Pascal Dupieux from LPC Clermont-Fd) and the groups of LPC Clermont-Fd, INFN Torino and Subatech Nantes. The LHC started 3rd year of operation in 2011. From March to October 2011 p-p collisions at 7 TeV have been delivered. The detector has operated successfully during this proton beam period where ALICE Muon Spectrometer has shown a very high performance for data taking. In 2011, the total integrated luminosity reached 5 pb-1 with ~960 runs for ~800 hours and the number of total accumulated p-p events with the Muon Spectrometer is about 800M. Since mid. Nov. 2011, ALICE is successfully taking PbPb data with a more than 10 times higher luminosity as compared to 2010, only a factor ~3 below nominal luminosity. On top of the responsibility of the MTR, the group of Clermont-Fd participated very actively to ALICE operation, taking in charge many central shift periods: Dr Baek especially has acting many times as "shift leader". M. SangUn Ahn has started a dual degree thesis in 2009 between the universities of Konkuk (Seoul, Korea) and Blaise Pascal (Clermont-Ferrand, France). The thesis supervisors are Pr. Oh and Pr. Rosnet, from Konkuk and Blaise Pascal University, respectively. The analysis of Upsilon production with the Muon Spectrometer, which is an important part of the thesis subject, has been studied with p-p data from 2010-2011. The goal of this analysis is to obtain a first (preliminary because the statistics is still low) measurement of the total and differential cross-section of Upsilon production. In order to obtain the factors for acceptance and efficiency corrections, Monte-Carlo simulations with PYTHIA are performed in the ALICE-ROOT analysis framework. The Parallel ROOT Facility with ALICE CAF (CERN Analysis Facility) and the ALICE Computing Grid are exploited to reduce the computing time and to achieve the required statistics. The results of M. SangUn Ahn have been reported regularly in Physics Working Group meetings and in the ALICE Junior's day. M. SangUn Ahn's thesis has been submitted to referees in Nov. 2011. The defense is scheduled for Dec. 05th, 2011, at CERN. Early 2011, Korea (GWNU) became full member of the ALICE Muon Spectrometer project, with voting rights at the Institutional Board. This initiative has of course received the full support of LPC Clermont-Fd with the idea of strengthening the collaboration with Korea on the long term within this project.

FKPPL Project report (2011)

Red info should be replaced by the appropriate text in black

Publications since 2010	1. **S.U. Ahn for the ALICE Collaboration, "Quarkonia Physics with the ALICE Muon Spectrometer"**, Proceedings of the 3rd ICATPP conference, Como, Italy, October 2011,in press 2. **J/ψ polarization in pp collisions at √S =7 TeV,** arXiv:1111.1630 ; CERN-PH-EP-2011-182 (2011) 3. **First proton-proton collisions at the LHC as observed with the ALICE detector: measurement of the charged-particle pseudorapidity density at √s =900 GeV,** Eur. Phys. J. C 65 (2010) 111-125 4. **Rapidity and transverse momentum dependence of inclusive J/ψ production in pp collisions at √s = 7 TeV,** Phys. Lett. B 704 (2011) 442-455 5. **Two-pion Bose-Einstein correlations in central PbPb collisions at √s NN = 2.76 TeV,** Phys. Lett. B 696 (2011) 328-337 6. **Centrality dependence of the charged-particle multiplicity density at mid-rapidity in Pb-Pb collisions at √s NN = 2.76 TeV,** Phys. Rev. Lett. 106 (2011) 032301 7. **Suppression of Charged Particle Production at Large Transverse Momentum in Central Pb--Pb Collisions at √s NN = 2.76 TeV,** Phys. Lett. B 696 (2011) 30-39 8. **Strange particle production in proton-proton collisions at s √s = 0.9 TeV with ALICE at the LHC,** Eur. Phys. J. C 71 (2011) 1594 9. **Charged-particle multiplicity density at mid-rapidity in central Pb-Pb collisions at √s NN = 2.76 TeV,** Phys. Rev. Lett. 105 (2010) 252301 10. **Elliptic flow of charged particles in Pb-Pb collisions at √s NN = 2.76 TeV,** Phys. Rev. Lett. 105 (2010) 252302 11. **Transverse momentum spectra of charged particles in proton-proton collisions at √s= 900 GeV with ALICE at the LHC,** Phys. Lett. B 693 (2010) 53-68 12. **Two-pion Bose-Einstein correlations in pp collisions at √s =900 GeV,** Phys. Rev. D 82 (2010) 052001 13. **Midrapidity antiproton-to-proton ratio in pp collisions at s √ =0.9 and 7 ~TeV measured by the ALICE experiment,** Phys. Rev. Lett. 105 (2010) 07200 14. **Charged-particle multiplicity measurement in proton-proton collisions at √s = 7 TeV with ALICE at LHC,** Eur. Phys. J. C 68 (2010) 345-354 15. **Charged-particle multiplicity measurement in proton-proton collisions at √s = 0.9 and 2.36 TeV with ALICE at LHC,** Eur. Phys. J. C 68 (2010) 89-108