

# FKPPL Project application (2012)

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<b>ID: Title</b>	<b>Development of a Cosmic Ray Telescope using the Multigap Resistive Plate Chamber</b>					
<b>List of participants</b>	<b>French Group</b>			<b>Korean Group</b>		
	<b>Name</b>	<b>Title</b>	<b>Affiliation</b>	<b>Name</b>	<b>Title</b>	<b>Affiliation</b>
	<u>Leader:</u> Veronique Puill	Dr.	LAL-Orsay	<u>Leader:</u> Do-Won Kim	Prof.	GWNU
	Vincent Chaumat	Engineer assistant	LAL-Orsay	Sungchul Lee	Prof.	GWNU
	Leonid Burmistrov	Dr.	LAL-Orsay	Mimae Kim	Ms.	GWNU
	Dominique Breton	Engineer	LAL-Orsay	Namil Baek	M.	GWNU
	Jihane Maalmi	Engineer	LAL-Orsay			
	Jean-François Vagnucci	Technician	LAL-Orsay			
	Achille Stocchi	Prof	LAL-Orsay			
	Bernard Genolini	Engineer	IPN-Orsay			
	Xavier Grave	Engineer	IPN-Orsay			
<b>Requested LIA specific funding from France</b>						
<b>Description</b>		<b>Euro/unit</b>	<b>Nb of units</b>	<b>Total (euros)</b>	<b>Requested to: *</b>	
Travel France-Korea		1300	2	2600	LIA-FKPPL	
Staying expenses		1700	2	3400	LIA-FKPPL	
Total				6000		
<b>Requested funding from Korea</b>						
<b>Description</b>		<b>Won/Unit</b>	<b>Nb of units</b>	<b>Total (Won)</b>	<b>Requested to: **</b>	
Travel Korea-France		2,000,000	4	8,000,000	NRF	
Staying expenses		2,500,000	4	10,000,000	NRF	
Total						
<b>Additional funding</b>	<b>Additional funding from France</b>			<b>Additional funding from Korea</b>		
	<b>Provided by or requested to ***</b>	<b>Type</b>	<b>Euro</b>	<b>Provided by or requested to</b>	<b>Type</b>	<b>Won</b>
	P2IO : Orsay – Saclay Laboratory of excellence ( <a href="http://www.campus-paris-saclay.fr">http://www.campus-paris-saclay.fr</a> )		86 k€			

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<b>Summary of Project</b>	<p>This project aims at developing on the Orsay campus a platform for detector testing using Cosmic Rays. The Cosmic Ray Telescope at Orsay (CORTO) will have an effective area of 1,28 m<sup>2</sup>, a spatial resolution of 1 cm<sup>2</sup> and a count rate of 40 Hz. It will be designed to perform test of detectors of various geometries and shapes in order to be usable by laboratories that develop devices for Calorimetry, Tracking or Particle Identification. Its innovative and very user-friendly acquisition system will allow a “plug-and-play” using of this facility. The studies on finding the best compromise between the specifications of the facility and its cost lead us to make use of tracking detectors and electronics already developed in the framework of other experiments and assemble them to build an innovative telescope. In order to ensure a good time resolution and a reasonable production cost, the Multigap Resistive Plate Chamber technology will be used.</p> <p>A collaboration between Korean and French laboratories has been formed including LAL-Orsay, IPN-Orsay, and Gangneung-Wonju National University:</p> <p>The SERDI (Service d’Electronique, Recherche en Détection et Instrumentation) of LAL-Orsay is a strong (45 persons) and very experienced group in High Energy Physics and Astroparticle detectors and its associated electronics. In the Detector and Instrumentation field, it has been in charge of the design and studies of detectors systems based on gaseous or Silicon detectors. It developed a high level expertise in Silicon Photomultipliers and in Photo-detectors tests facilities.</p> <p>The Instrumentation and Computing Division (D2I) of the Nuclear Physics Institute of Orsay (IPNO) comprises 60 persons. D2I has been involved in large projects at CERN (the LHC ALICE di-muon arm, nTOF), at JLAB (G0, DVCS, CLAS12), at GSI (HADES, PANDA, SOFIA), GANIL (MUST1 &amp; 2, PARIS) and at the ALTO facility. It also carries out R&amp;D projects, such as PMm2 (innovative electronics and integrated systems for next generation neutrino experiments) and a participation to RD51, the CERN project on micro-pattern gaseous detectors (MPGD). The D2I has also a long experience in data acquisition systems.</p> <p>The Gangneung-Wonju National University (GWNU) group started its involvement in the studies of the Multigap Resistive Plate Chamber in 1998. In close collaboration with Dr. Crispin Williams’ group at CERN, researchers and students of GWNU constructed and tested a very big muon MRPC, and developed a small high time resolution MRPC. GWNU has participated in the development, construction, and installation of the ALICE-TOF detector which consists of about 160,000 channels of MRPC with a time resolution of 50ps. GWNU will contribute to the Orsay Muon Trigger Project in the areas of MRPC construction, commissioning, and in the analysis of data.</p>
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