

# **UNECOSOC Innovation Fair**

## **CERN : Fundamental research on particle physics**

CERN, the European Organization for Nuclear Research, operates the world's leading laboratory for particle physics. Its business is fundamental physics, finding out what the Universe is made of and how it works. Founded in 1954, CERN has become a prime example of international collaboration, with currently 20 Member States. Additional nations from around the globe also contribute to the research programmes. In total, more than 11,000 scientists from over 100 nations collaborate in the physics research at CERN.

The CERN Laboratory sits astride the Franco-Swiss border near Geneva. Its flagship research facility, the Large Hadron Collider, is housed in a 27-kilometer tunnel under the plain between Lake Geneva and the Jura mountains.

Four huge detectors (ALICE, ATLAS, CMS, LHCb) measure and identify particles produced in the collision of protons or lead ions, up to 600 million per second. In 2012, the excellent performance of the LHC and the experiments led to the discovery of a new particle that features many of the expected properties of the Higgs boson.

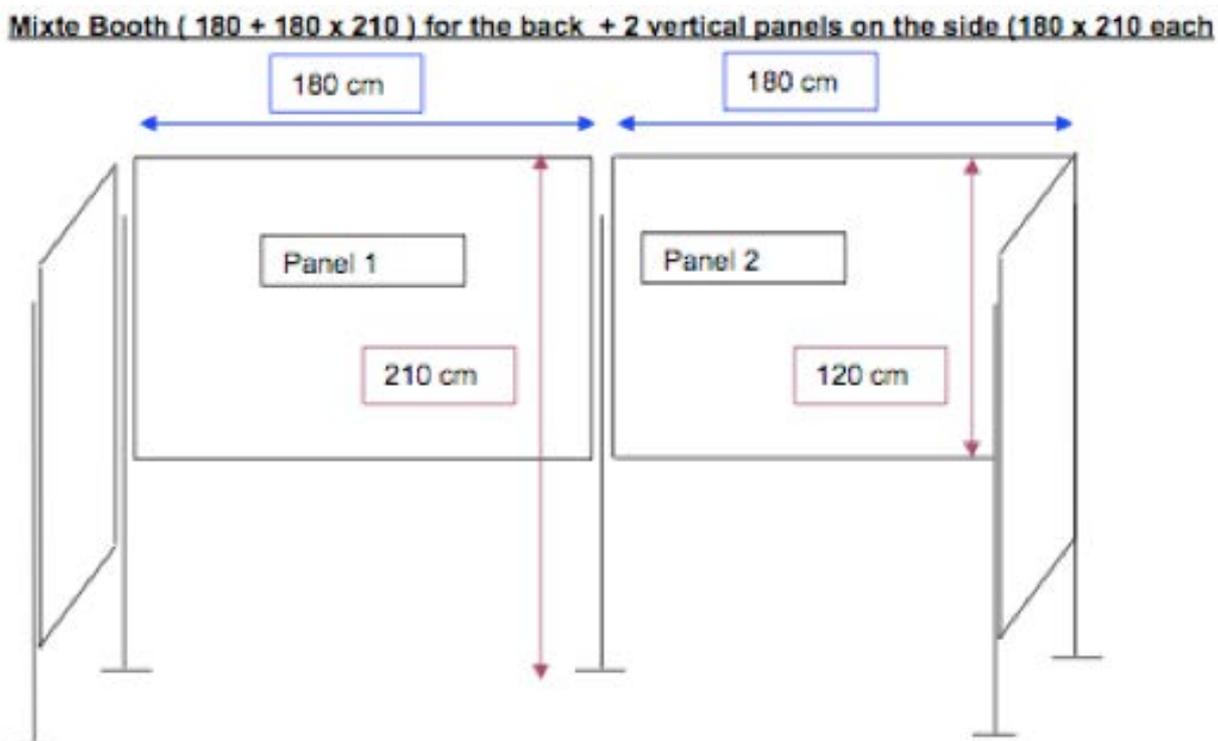
The LHC data are analyzed using the LHC computing GRID, a world-wide infrastructure consisting of more than 300,000 CPUs.

Sharing its knowledge with society is an important part of CERN's mission. By driving innovation, developing forefront technologies, stimulating international collaboration and training a new generation of scientists, CERN shares the benefits of its work with other fields in research, industry and education.

To motivate school students to become interested in modern physics, CERN offers special 1-week programmes for more than 1000 school teachers per year, coming from more than 30 countries.

**CERN exhibition at the ECOSOC Innovation Fair 2013**

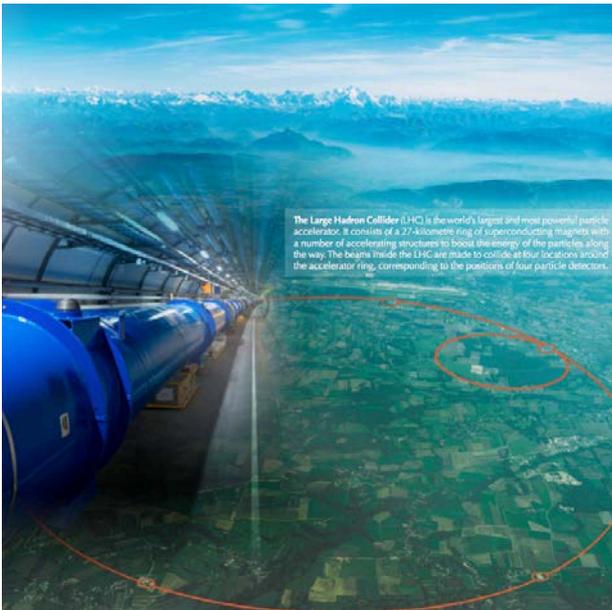
The stand will illustrate the above messages with the corresponding visual material. The stand will be a 'mixed booth', with two side panels of dimension 180x210 cm<sup>2</sup> and two back panels of dimension 180x120 cm<sup>2</sup> (see sketch below):



In front of the stand, there will be a table and two chairs. On the table, we will put a small detector (called "MediPix"), together with a computer (below the table) and a computer screen showing the readout of the detector. This unit will illustrate an important application of modern detector technology used in the LHC experiments (called "pixel detectors") for medical applications.

Towards the left side of the stand, we will have a 55" screen playing a 1 minute video loop about CERN, the LHC, the experiments, and the discovery of the Higgs boson.

The images below show the preliminary design of the posters for the 4 panels.



	<h2>Accelerating Science driving knowledge and innovation</h2>			
<h3>Seeking</h3>				
<p>Answers to questions about the Universe. What is it made of? How did it come to be the way it is?</p>	<h3>Uniting</h3> <p>Nearly 10 000 scientists from more than 110 countries. CERN is a laboratory for the world.</p>	<h3>Training</h3> <p>The young scientists and engineers who will be the experts of tomorrow.</p>	<h3>Advancing</h3> <p>The frontiers of technology and engineering.</p>	

<p>MEDIPOC Particle detectors invented at CERN are used in techniques for medical diagnosis.</p>	<p>Solar panels installed on the roof of Geneva airport. These panels are based on a technology developed at CERN.</p>
<p>PET / CT scanning is the most advanced clinical tool in cancer diagnosis and radiation therapy treatment.</p>	<p>A hadron therapy treatment room in CNAO.</p>
<h3>From basic research to innovation and technology</h3>	

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