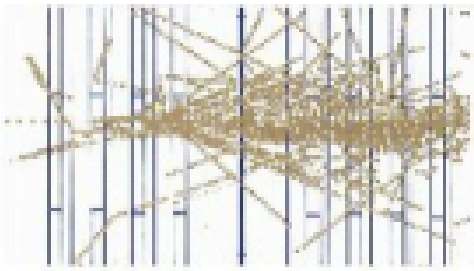

Contribution ID: **75** Type: **oral presentation**

The ALICE Electromagnetic Calorimeter Project

Monday, 26 May 2008 16:25 (20 minutes)

Summary

The ALICE Experiment (A Large Ion Collider Experiment) aims to study the properties of quark-gluon matter using Pb-Pb collisions at a center of mass energy (per nucleon pair) of sqrt(sNN) = 5.5 TeV with the Large Hadron Collider (LHC) at CERN.
The EMCAL consists in a large area electromagnetic calorimeter able to extend the measured momentum range of photons and electrons by over an order of magnitude. In addition, the EMCAL will enhance the capability of the overall ALICE setup to perform better jet reconstruction by measurement of the neutral energy component of jets, photons and neutral pions. The EMCAL will also produce a fast high-pT trigger: the anticipated minimum bias average Pb-Pb interaction rate is very high (around 8 kHz), thus a fast high-pT trigger will provide an enhancement in high PT events in central collisions.
The EMCAL covers a geometrical region from -0.7≤eta≤0.7 (in pseudo-rapidity eta) and 120deg in the azimuthal angle phi. In particular, the phi-coverage of the EMCAL has been chosen to allow the detection of gamma-jet events in coincidence with the other ALICE complementary calorimeter, the PHOS.
The EMCAL is a modular sampling calorimeter: it can measure showers up to 20 radiation lengths. Each module is composed by 4 towers of a Pb-scintllator sandwich (shashlik). The shape of the basic module is tapered to allow a projective geometry of the final assembly with respect to the interaction point. An assembly of 12x24 modules is called a super-module. The complete EMCAL is a high granularity detector containing 11 super modules for a total of 12.672 towers.
An independent optical readout of each tower is provided using wavelength shifting fibers coupled to an APD (Avalanche Photo Diod). The APD readout was chosen since the EMCAL has to operate in a high B-field environment created by the solenoidal magnet. The gain of the APD is monitored using LED activated scintillator installed on into each module.

Primary author: Dr RONCHETTI, Federico (INFN LNF)

Presenter: Dr RONCHETTI, Federico (INFN LNF)

Session Classification: Calorimetric Techniques

Track Classification: Calorimetric Techniques