

Calorimetry in ALICE at LHC

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ALICE at the Large Hadron Collider (LHC) is the dedicated experiment focused on heavy ion collisions at LHC, to study a de-confined matter of quarks and gluons, called Quark Gluon Plasma (QGP). Among the sub-detector systems in ALICE, there are two types of calorimetry in the central barrel. One is EMCal (Lead-Scintillator, a sampling electromagnetic calorimeter with a WLS fiber and APD readout), having a wide geometrical acceptance to measure jets, and photons and neutral mesons with a moderate energy resolution. Another type of calorimeter is PHOS (PHOTon Spectrometer), PbWO_4 crystal with APD readout for high granularity and higher precision energy measurement for photons.

In this talk, we review those detectors performance in ALICE, and show a ongoing upgrade project in calorimetry, DCAL (Di-jet Calorimeter), an extension of EMCal coverage to measure back-to-back jets. Furthermore, we present an upgrade proposal for the forward direction calorimetry, FOCAL, to measure direct photons in $\eta = 3.3 - 5.3$, by using a novel technology of silicon photo-diodes with absorbers based electromagnetic calorimeter for photons, together with a conventional hadron calorimeter for jets. The current status of FOCAL R&D project will be presented.

Summary

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