QUARK MATTER 2015
Sep. 27 – Oct. 3, 2015 Kobe, Japan

Contribution ID: **348** Type: **Poster**

Detector R&D of the Forward Calorimeter with PAD readout for the ALICE upgrade

Tuesday, 29 September 2015 16:30 (2 hours)

FoCal is a proposed upgrade project for the ALICE experiment at LHC to study the initial state of the high-energy heavy-ion collisions. FoCal comprises two calorimeters: an electro-magnetic calorimeter (FoCal-E) to measure the direct photons is complemented by a hadron calorimeter (FoCal-H) to improve isolation and jet measurements. FoCal-E consists of low-granularity silicon-pad (PAD) modules and high-granularity silicon-pixel (Monolithic Active Pixel Sensors: MAPS) modules, and has been designed as a Si+W sampling calorimeter.
In the current design, the FoCal-E structure consists of four PAD modules and two MAPS modules. The main purpose of the MAPS modules is the precise location of the position of the shower and the two-shower separation, while the PAD modules are essential for a good measurement of the shower energy. One PAD module has four layers each consisting of a tungsten tile and an 8x8 silicon photodiode(of size 11.3x11.3 mm2) array, respectively.
The summed signal of four photodiode cells in same lateral position is read out via a summing board and APV25 hybrid chips.
In this presentation, we show the detector performance of FoCal-E PAD system, which has been evaluated in two test beam experiment at CERN PS and SPS test beam lines in September and November in 2014, respectively.
Energy resolution, linearity in energy, and position resolution have been measured at these beam tests.
We also present an outlook and the current status of faster readout system for the FoCal-E PAD using the SRS and VMM chips.

On behalf of collaboration:

[Other]

Primary author: HIRANO, Masahiro (University of Tsukuba (JP))

Co-authors: INABA, Motoi (University of Tsukuba (JP)); CHUJO, Tatsuya (University of Tsukuba (JP))

Presenter: HIRANO, Masahiro (University of Tsukuba (JP))

Session Classification: Poster Session

Track Classification: Future Experimental Facilities, Upgrades, and Instrumentation