Poster Review

Calorimetry

Stefano Miscetti
Satoshi Mihara
Calorimetry Poster Session

- 29 contributions
- Performance report 8
- Calibration/monitoring 2
- Upgrade plan 6
- New development and basic study 13
Performance report

- ATLAS LAr by L. A. Bella (LAPP)
- ATLAS TileCal by Y. Hernandez (IFIC) and E. Meoni (IFAE)
- Tau reconstruction at ATLAS by S. M. Consonni (Milano)
- Jet reconstruction at ATLAS by L. Kogan (Oxford)
- Single hadron response at ATLAS by M. J. Sousa (LIP)
ATLAS

- LAr performance
- Tau/Jet reconstruction
- TileCal performance
- Single hadron response

**Largest contribution to the Jet Energy Scale uncertainty**

**JES uncertainty 2-4%**
Performance report cont’d

- CMS Ecal by J. L. Faure
- CMS forward calorimeter CASTOR by A. P. Panagiotou (Athens)
impact on the $Z\rightarrow ee$ energy scale and resolution from the incorporation of more sophisticated clustering and cluster correction algorithms.
Calibration/Monitoring

- CMS Ecal calibration using LHC collision data by M. Obertino (Piemonte)
- Calibration and monitoring system for the ATLAS TileCal by D. Boumediene (U. Blaise Pascal)
Calibration/monitoring

CMS ECAL laser monitoring system

ATLAS TileCal calib./monitoring systems

cross-check using Z->e^+e^- data

stable within 4%

The mean gain variation of the 10000 channels is computed cell by cell as a function of eta and radius, between the 19 March 2012 and the 21 April 2012
Upgrade Plan

- CMS HCAL front-end electronics by J. Anderson (FNAL)
- Upgrade of the CMS HO with SiPM by J. Anderson (FNAL)
- New photosensor for the CMS HCAL by J. Anderson (FNAL)
- ATLAS TileCal readout electronics upgrade by F. C. Argos (Valencia)
- ATLAS LAr readout electronics upgrade by S. Staerz (Dresden)
- ATLAS FCal upgrade by M. Fincke (Victoria)
CMS HCAL/HO Upgrade

major luminosity increase expected in 2017

Full HO SiPM System installation in 2013

FE Electronics for HCAL Upgrades

- Installation Plan
  - LS1 - HF/HO Photo-sensor replacement, commission BE μTCA
  - LS1.5 - HF FE electronics replacement
  - LS2 - HB/HE/HO FE electronics replacement
    (HB/HE photo-sensor, FE electronics. HO FE Electronics)

- Cost/Schedule Constraints
  - Re-use as much of the existing infrastructure as possible
  - Reuse optical data links, H2O cooling, readout boxes
  - Modular FE readout & control units allow for easy replacement of FE electronics
  - Radiation Environment (2E12 n/cm², 100 Gy), B-field: up to 4T

HCAL photosensor HPD -> SiPM
ATLAS Calorimeter Upgrade

TileCal readout electronics upgrade three options

FCal Upgrade

LAr readout electronics development as well

sFCal or MiniFCal?
New development

- LXe detector R&D by G. Signorelli (Pisa)
- SiPM readout for Shashlik and crystal-based calorimeter, TWICE by A. Berra (MIB)
- MAPD readout for Shashyk EM calorimeter for COMPASS II by I. Chirikov-Zorin (JINR)
New development cont’d

- DREAM project by M. Cascella (Lecce)
- Study on integration time, super B by D. Pinci (Roma)
- mu2e detector by G. Onorato (FNAL)
New development cont’d

- KLOE-2 CCALT by S. Giovannella (LNF)

- KLOE-2 QCALT by A. Saputi (LNF)
New development cont’d

- LYSO calorimeter for SuperB by A. Rossi (Perugia)
- Shower Library technique H1 by N. Raicevic (Montenegro)
- Pb-Scifi Calorimeter for BES III by A. Zallo (LNF)
New development cont’d

- Semi-Digital HCAL using GRPC for ILC by S. Mannai (UC-Louvain)
- CALICE scintillator-tungsten HCAL for CLIC exp. by A. L. Timoce (CERN)

Glass Resistive Plate Chamber

test beam May 2012!
Visit us!