

HCAL Analysis

Yalcin Guler

Emine Gurpinar

Shuichi Kunori, Isa Dumanoglu,
Bayram Tali, Serdal Damarseckin, Samet Lezki,
Merve Ince, Hasan Huseyin Isik

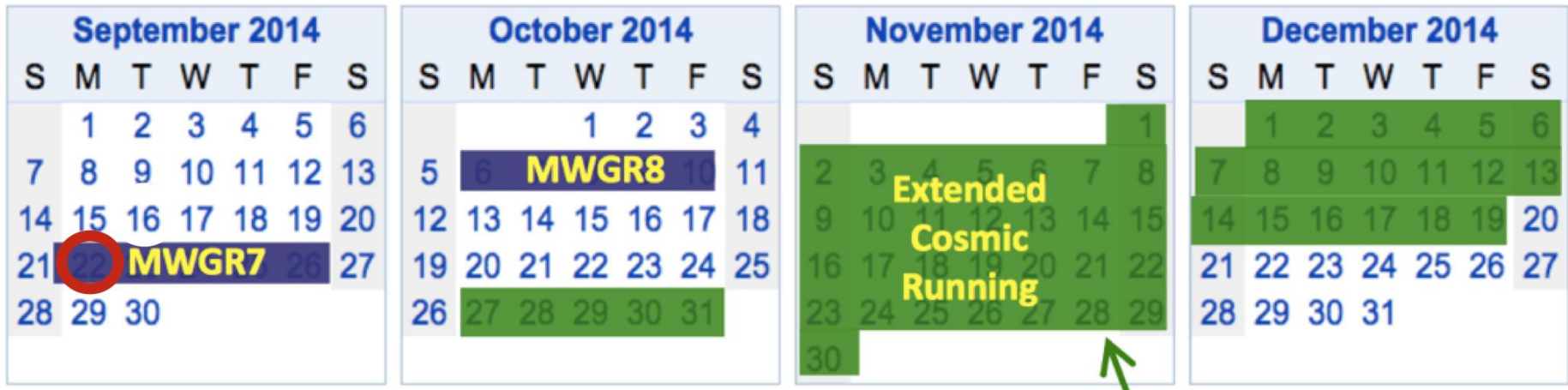
Introduction

- We are trying to write code about HF noise analysis.
- We have a configuration file for RECO for MWGR5, ED analyzer to produced rechit energy for HB, HE, HO and HF.
- We attended to Hcal Operation meeting(22.09.2014)
- We have code about reconstructed cosmic muon with global runs, here is the code where we get the global muon track.

<https://git.cern.ch/web/HO.git/blob/ce1d5287dfcef2c37a1630cc37f7be757a58abbe:/HO904/src/HO904efficiencyAnalyzer.cc>

CMS Schedule

<https://twiki.cern.ch/twiki/bin/view/CMS/Run2CMScommissioning>



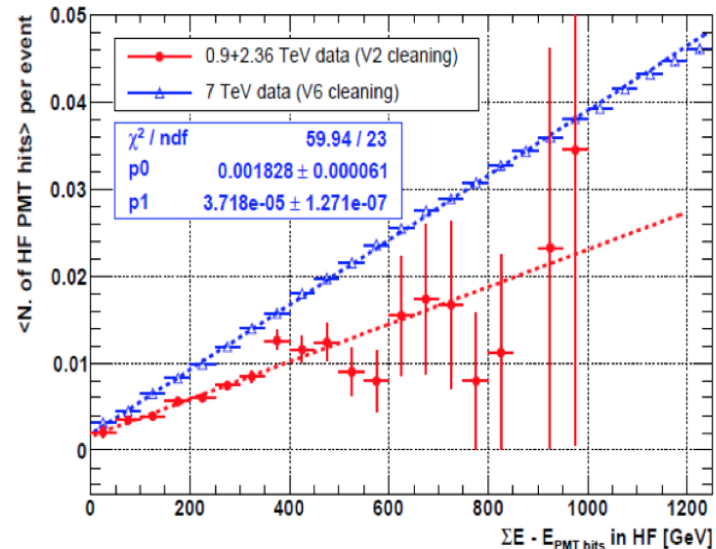
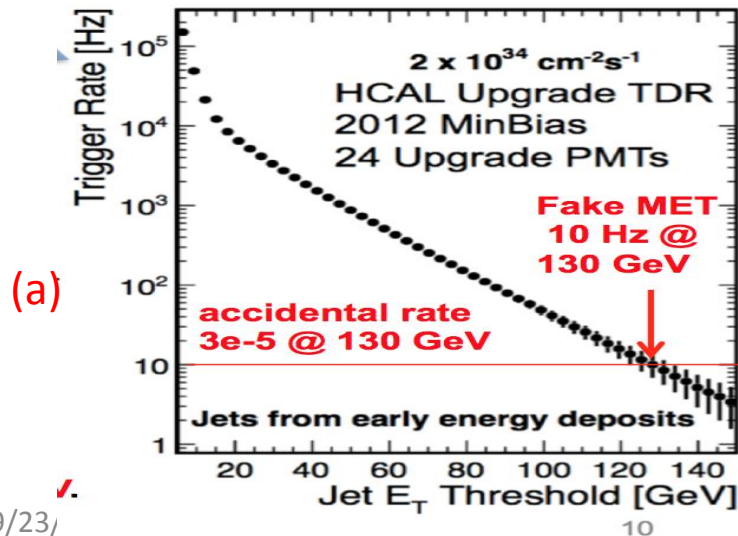
We have the "global" commissioning to prepare CMS for physics in Run 2.

- 22 - 26 September **MWGR7** Last check of central detector with access Run with all 3 HF uTCA crates
- 6 - 10 October **MWGR8** Last check of central detector with access (contingency) (Test oRSCs) (Test uHTR)
- 27 October - 19 December CRUZET (B=0T) Tracker alignment with cosmic rays at B=0T
- 27 October - 19 December CRAFT (B=3.8T) Stable cosmic running with Run-2 detector

<https://indico.cern.ch/event/337868/contribution/0/material/slides/0.pdf>

HF noise Analysis

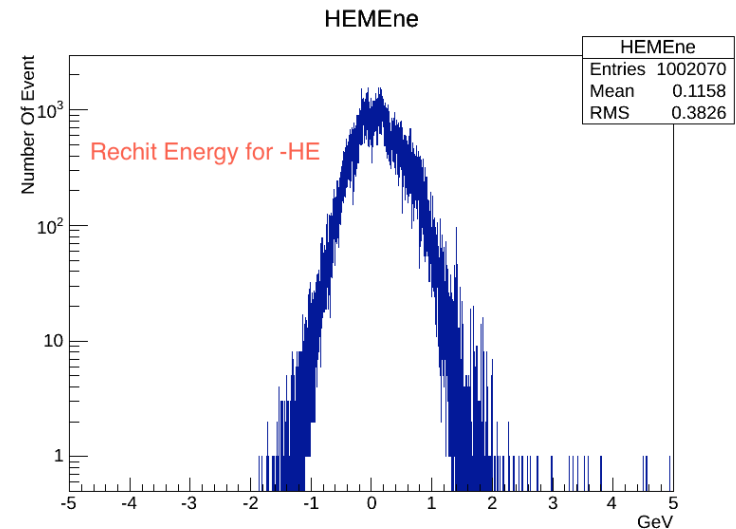
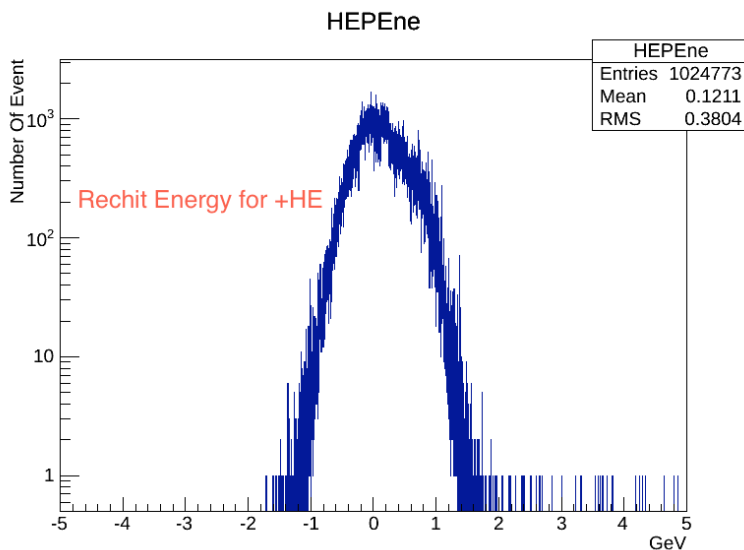
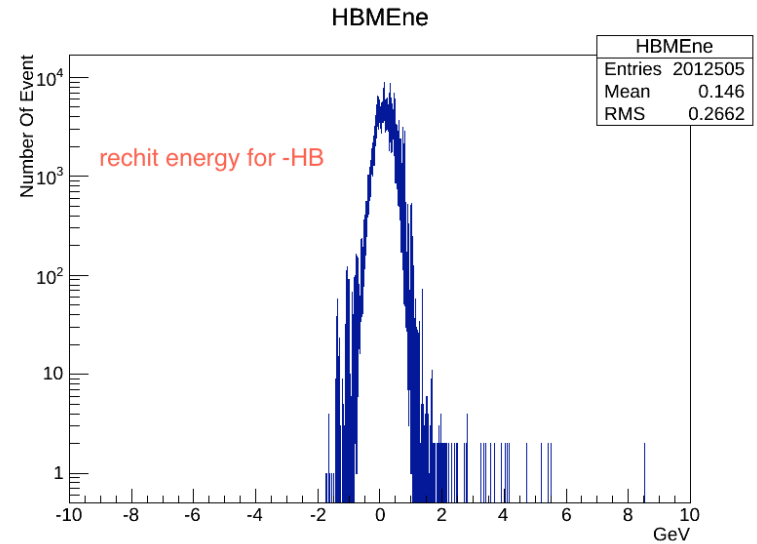
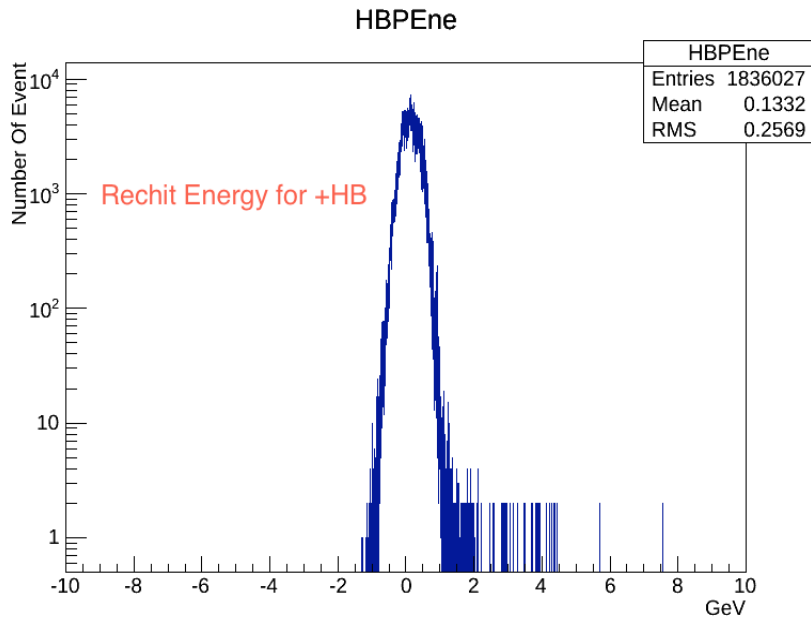
- We started the HF PMT hits analysis
- We need to find
 - which channels had the 24 new PMTs on HF
 - https://twiki.cern.ch/twiki/pub/CMS/HF_ROBOX_TESTS_P5/DN2012_011.pdf
 - which dataset (run number) used.
- We are trying to make plot of Trigger rate (a) and distribution of number of PMT hits vs sum Energy in HF subtracted energy of PMT hits in HF (b). Then look into the noise identification and phase setting issue.



Run Information for Rechit Analysis

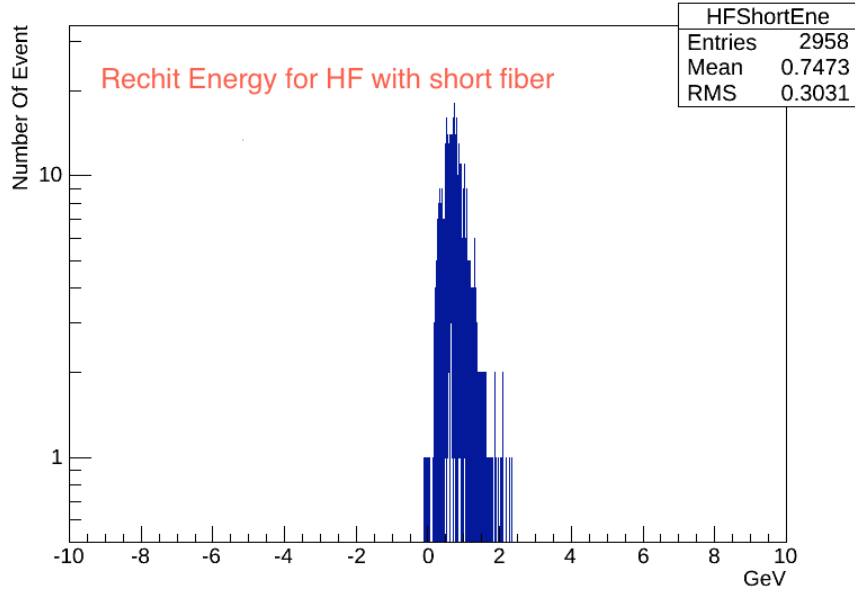
- Analyzed the runs taken from MWGR5
- We use Raw, minimumbias dataset.
- We have problematic runs that have all process same events
- We also include these runs for analysis (see MET plots)

Rechit Energy for HB, HE

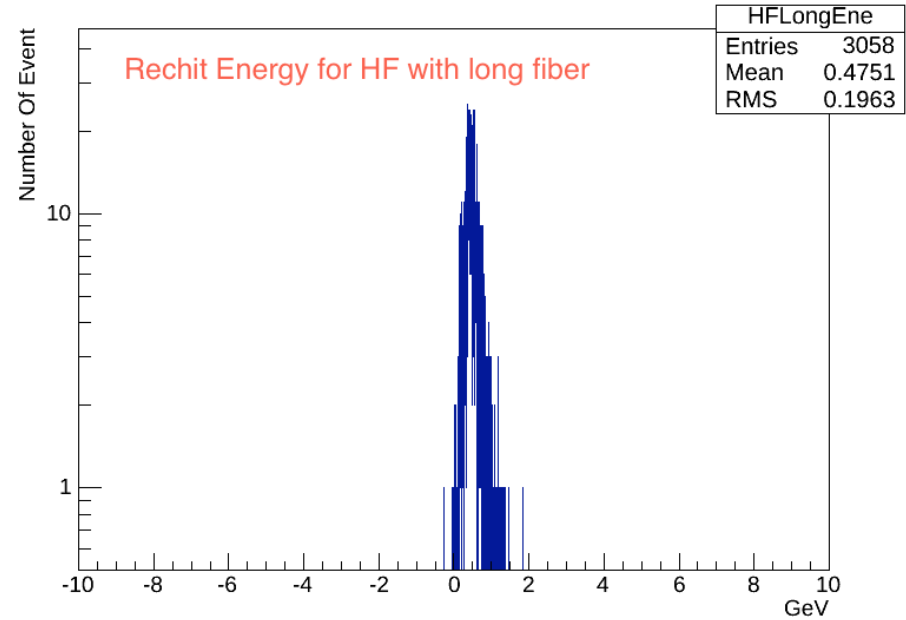


Rechit Energy for HF

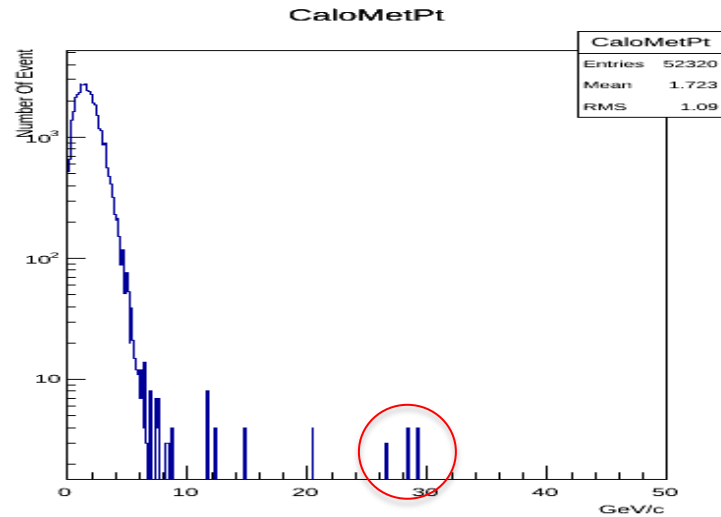
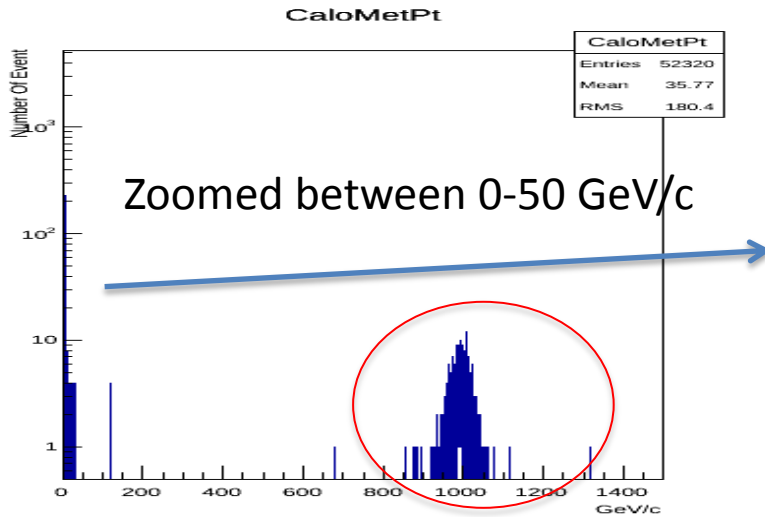
HFSHORTENE



HFLONGENE

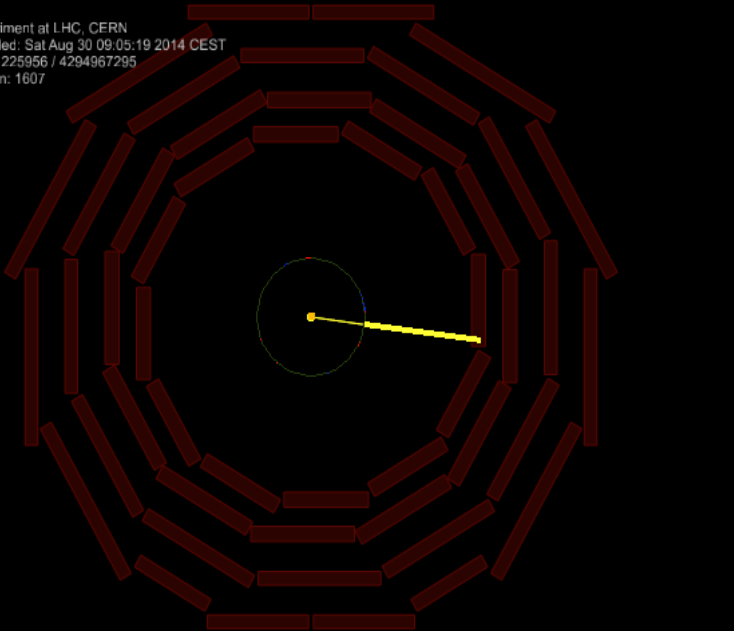


CaloMET distribution

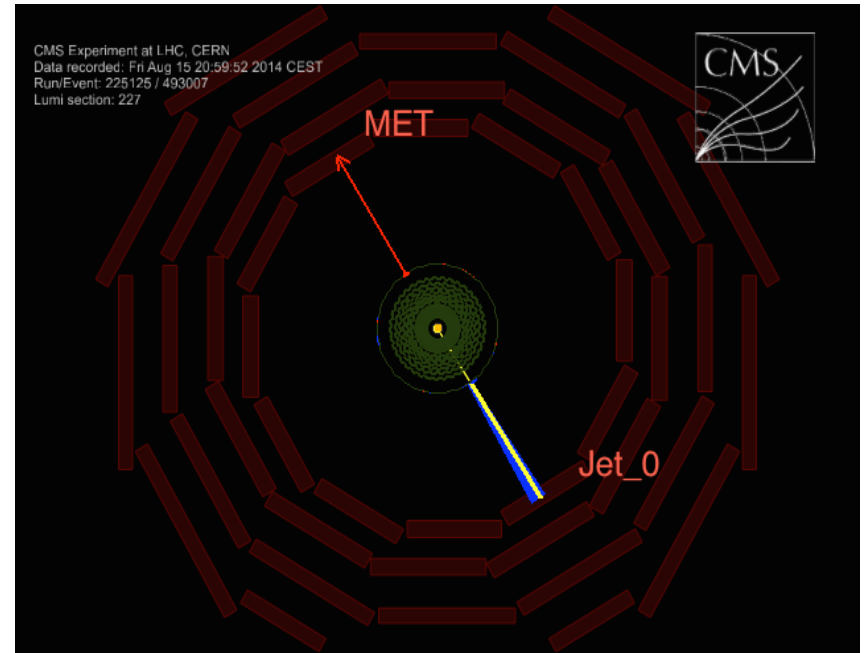


For runs 225125, event= 493007

CMS Experiment at LHC, CERN
Data recorded: Sat Aug 30 09:05:19 2014 CEST
Run/Event: 225956 / 4294967295
Lumi section: 1607



CMS Experiment at LHC, CERN
Data recorded: Fri Aug 15 20:59:52 2014 CEST
Run/Event: 225125 / 493007
Lumi section: 227



Back-up

Global5 Raw data

| | |
|--------|--------|
| 225075 | 225861 |
| 225080 | 225862 |
| 225117 | 225893 |
| 225119 | 225896 |
| 225125 | 225904 |
| 225709 | 225906 |
| 225713 | 225909 |
| 225826 | 225910 |
| 225829 | 225916 |
| 225832 | 225918 |
| 225834 | 225930 |
| 225838 | 225948 |
| 225843 | 225949 |
| 225849 | 225953 |
| 225860 | 225956 |

Old replacede New PMTs DetId

| Ch. No | (ieta,iphi,depth) | Ch. No | (ieta,iphi,depth) |
|--------|-------------------|--------|-------------------|
| Ch01 | (41.43.1) | Ch14 | (41.43.2) |
| Ch02 | (40.43.1) | Ch15 | (40.43.2) |
| Ch03 | (39.43.1) | Ch16 | (39.43.2) |
| Ch04 | (38.43.1) | Ch17 | (38.43.2) |
| Ch05 | (37.43.1) | Ch18 | (37.43.2) |
| Ch06 | (36.43.1) | Ch19 | (36.43.2) |
| Ch07 | (35.43.1) | Ch20 | (35.43.2) |
| Ch08 | (34.43.1) | Ch21 | (34.43.2) |
| Ch09 | (33.43.1) | Ch22 | (33.43.2) |
| Ch10 | (32.43.1) | Ch23 | (32.43.2) |
| Ch11 | (31.43.1) | Ch24 | (31.43.2) |
| Ch12 | (30.43.1) | Ch25 | (30.43.2) |
| Ch13 | (29.43.1) | Ch26 | (29.43.2) |

Comparison plots new and old PMTs with LED data

