- Continue at CMS/AndreyPozdnyakovLogBook12

18-Dec-2011

- Electrons 2011B finished, produced new Z-lib file for it: ~/nobackup/ZedLib/m_Data_2.root
- Resubmitted ~~Z+jets~~ alls bg MC samples.

- To Do
  - Photon+jets for electrons
  - Library from MC (both muons and ele)

16-Dec-2011

- renaming files (in bash)

```
for f in *.root; do mv "$f" "${f/aa/bb}"; done
```

14-Dec-2011

- emacs regexp search: Ctrl+Alt+s
- Also: Alt+x, replace-regexp

01-Dec-2011

- To kill the batch jobs on some node:

```
rsh cmslpc15.fnal.gov condor_rm andreypz
```

25-Nov-2011

- BPTX_mon:

```
export LD_LIBRARY_PATH=/usr/local/lib
bptx_mon_cogging --config=file
rdesktop -u brm -p
```

-

23-Oct-2011

- The order of dip-publisher screens:
  - LhcInOnePage, BCMSummary, BCM1FLumi (CMS/LHC/BKGD), BRMSummary
- deal with csv files:

```
csvtool col 1-2 -t TAB -u ';' slova.csv >output.csv
```

21-Oct-2011

- These are the test versions:
  - http://srv-c2c04-07.cms/bptx_mon_test/cogging/html/bptx_mon_cogging.html
  - http://srv-c2c04-07.cms/bptx_mon_test/timing/html/bptx_mon_timing.html

- The 'real' versions should produce results here:

- http://srv-c2c04-07.cms/bptx_mon/cogging/html/bptx_mon_cogging.html
- http://srv-c2c04-07.cms/bptx_mon/timing/html/bptx_mon_timing.html

- BX for trigger in 2011: CMS/LHCBunchConfiguration2GtBxTableReq

16-Oct-2011

Changes wrt previous versions

- Jet pt>30 (instead of 30)
- Jet eta<4.8 for jet counting, dPhi(met, jet) cut and sumJets (eta<2.4 for b-jets)
- Nominal third lepton veto + soft 3d muon veto

16-Oct-2011

mass	MT1	Mt2	Met	dPhi
250	222	272	59	0.47
300	264	331	76	0.33
350	298	393	95	0.21
400	327	460	115	0.12
450	354	531	133	0.06
500	382	605	148	0.01
550	413	684	157	-0.00
600	452	767	159	0.00

05-Oct-2011

mass	**pfMet type1**	**pfMet**	**redMet**	pfMet from PAS
250	78 ± 2	71 ± 2	63 ± 2	69
300	97 ± 5	87 ± 4	79 ± 5	83
350	120 ± 6	110 ± 8	92 ± 6	97
400	130 ± 12	130 ± 10	100 ± 10	112

- L1 Menu

03-Oct-2011

- Optimal cust against DYmumu background
- dPhi cuts were applyed for lower mass points

mass	**pfMet type1**	pfMet	pfMet from PAS
250	78 ± 4	69 ± 3	69
300	99 ± 6	85 ± 5	83
350	115 ± 6	105 ±6	97
400	130 ± 10	130 ± 10	112
450	140 ± 20	140 ± 20	126
500	160 ±20	160 ±20	141
550	-	-	155
600	-	-	170

03-Oct-2011

- crab_0_111003_101901/ - resubmitting Mu Promptv4
- crab_0_111003_114948 - p v4 no skimming

27-Sep-2011

- tdc data on lxplus410

13-Sep-2011

- CMS/StatisticsCommittee

12-Sep-2011

BRM computing, refreshing the memory

- First

```
ssh -Y brmbcmctrl3

brmdev
```

- The code is located at **bptx/discrCFD950**
- CMS/BrmData

09-Sep-2011

	New ntpl	Old ntpl	Nate's (old ntpl)
0-bin	27	23	24
1-bin	19	16	15
2-bin	13	10	8
3-bin	1	1	1

08-Sep-2011

- Double-check the Global Tag for JeC
- To do efficiency of signal (bg) for max points
- Number of b-jets on NWU twiki

BPTX counts

- CMS filling schemes
- Fill 2086

orbit_B1	911-912
orbit_B2	911-912
orbit_AND	872-873
orbit_OR	930-931
ORBIT_BPTX1_ANDNOT_BPTX2	30-31
ORBIT_BPTX2_ANDNOT_BPTX1	26-27

- Fill 2085

orbit_B1	480
orbit_B2	480
orbit_AND	423
orbit_OR	530
ORBIT_BPTX1_ANDNOT_BPTX2	55
ORBIT_BPTX2_ANDNOT_BPTX1	54

02-Sep-2011

- At NWU sept 07: cut optimizations for Mets, prinout of yields (updated with tbarW, fixed higgs)

02-Sep-2011

- wtf is crystal ball?
- Top samples: CMS/SingleTopMC2011

29-Aug-2011

- Updated the yields and b-jets at nwu meeting

28-Aug-2011

- copy local file to dcach:

```
lcg-cp "file:///`pwd`/archive_higgsfiles4.tar" "srm://cmssrm.fnal.gov:8443/srm/managerv1?SFN=/res
```

26-Aug-2011

- NWU/Higgs tag V00-06: N b-jet sync with Nate
- Working with json files CMSPublic/SWGuideGoodLumiSectionsJSONFile

25-Aug-2011

- Put material on NWU meetings twiki
  - ♦ Need to make N b-jet plot for pt>25, pt>30 cuts
  - ♦ Use gamma+jets bg
- PU corrected Met: CMS/SaclayPseudoMETProducer

Yields for 1.1 fb (still old data with missing part of May10)

sel	top	ttbar	WZ	WW	ZZ	Zjets	Data	Total bg	higgs	S/B
basic cuts	3.00	20.67	32.55	35.79	29.15	64731.20	67057	64852.36	5.20	0.000
H300	0.191	1.894	2.784	0.710	4.386	0.377	10	10.34	3.00	0.290
H400	0.001	0.014	0.571	0.000	1.603	0.052	0	2.24		
H450	0.001	0.005	0.377	0.000	1.199	0.052	0	1.63		

- Basic cuts include: anti-b veto, qT>25.
- H300 includes the cuts on dPhi(Jet, Met), Met and MT

15-Aug-2011

Improvements/chnges needed in Nates analyzer

- Split puReweighting, gamma and ZZ reweighting.
- bTaggin with all jets not only leading jet

14-Aug-2011

- Submitted DoubleMu and DoubleEle sample for ntuplizing
- Tagged NWU/Higgs with V00-03
    - Added Photon+jets code from Radek/Anton
    - Updated analyzer

13-Aug-2011

Crop pdf files to read on PocketBook or any e-Reader:

```
pdfcrop file1.pdf file_croped.pdf
```

11-Jul-2011

- Loose/tight third lepton (based on v16 and v17)

	tight	loose	frac removed
data may10	21	16	0.24
data v4	67	61	0.09
DYmumu	21	20	0.05
WZ	1586	1480	0.07
ggH400	20100	19985	0.006

07-Jul-2011

- Z+jets from photon+jets: http://home.fnal.gov/~andreypz/nwu/110707_photon/
- cut's optimization (from email)

ShowText Hide Text

```
I started with projMET>70 cut.
After that I go and optimize the projMet/qt cuts for H400, see plot
attached [p04].
The question is: what to optimize : S/B,  S/sqrt(B)  or S/sqrt(B+S)
Initial values of S/B = 0.378   S/sqrt(B) = 1.241   S/sqrt(B+S) = 1.057

 If I optimize S/B, than   the cuts would be
from 0.9 to 1.6 and
 S/B = 0.559  S/sqrt(B) = 1.226  S/sqrt(S+B) = 0.982

If I optimize S/sqrt(B) then:
from 0.5 to 1.7
 S/B = 0.494  S/sqrt(B) = 1.343  S/sqrt(S+B) = 1.098

If I optimize S/sqrt(S+B) then:
from 0.5 to 2.6
 S/B = 0.463  S/sqrt(B) = 1.335  S/sqrt(S+B) = 1.104
```

```
That was for muons.

The same for electrons:
Initial values of S/B = 0.425   S/sqrt(B) = 1.140   S/sqrt(B+S) = 0.955

S/B
from 0.7 to 1.4
 S/B = 0.595  S/sqrt(B) = 1.173  S/sqrt(S+B) = 0.929

S/sqrt(B)
from 0.4 to 1.5
 S/B = 0.529  S/sqrt(B) = 1.190  S/sqrt(S+B) = 0.962

S/sqrt(S+B)
from 0 to 2.2
 S/B = 0.467  S/sqrt(B) = 1.172  S/sqrt(S+B) = 0.968

Decided to take the cuts:
from 0.6 to 1.8

After that I go and optimize MT (plot [p03]):
All for muons:
Initial values of S/B = 0.490   S/sqrt(B) = 1.326   S/sqrt(B+S) = 1.086

Optimizing S/B:
from 360 to 430
 S/B = 8.335  S/sqrt(B) = 3.685  S/sqrt(S+B) = 1.206

Optimizing S/sqrt(B)
from 350 to 430
 S/B = 7.689  S/sqrt(B) = 3.793  S/sqrt(S+B) = 1.287

Optimizing S/sqrt(S+B)
from 300 to 530
 S/B = 3.672  S/sqrt(B) = 3.274  S/sqrt(S+B) = 1.515


If I don't cut on projMET/qt  and optimize MT  cut right after MET>70
(plot [p05]):

Initial values of S/B = 0.378   S/sqrt(B) = 1.241   S/sqrt(B+S) = 1.057

Optimizing S/B:
from 400 to 470
 S/B = 2.224  S/sqrt(B) = 1.206  S/sqrt(S+B) = 0.672

Optimizing S/sqrt(B)
from 330 to 510
 S/B = 1.819  S/sqrt(B) = 2.225  S/sqrt(S+B) = 1.325

Optimizing S/sqrt(S+B)
from 300 to 510
 S/B = 1.388  S/sqrt(B) = 2.123  S/sqrt(S+B) = 1.374
```

06-Jul-2011

- Third lepton. ee,
  - 163480 / 42503094 / 69 - third muon
  - 163817 / 533054219 / 571 - third muon
  - 163660 / 5163504 / 9 - third electron
  - 163758 / 179890977 / 242 - third muon
- Third lepton mumu
  - 163659 / 243264615 / 320 - third muon
  - 163385 / 49289544 / 97 - third muon

- 163659 / 239320808 / 314 - third electron
- 163663 / 18012682 / 25 - third muon
- 163334 / 111523135 / 190 - a lot of stuff

- Killed by loose third lepton, Mu
  - 163334 111523136
  - 163385 49289544
  - 163659 243264608
  - 163663 18012682
  - 163759 52493008

24-Jun-2011

- CMS/HiggsWG/HiggsKfactors

19-Jun-2011

- CMSPublic/SWGuideMETObjects#Calculating_MET_from_PF_clusters

08-Jun-2011

- CMS/CrossSectionDetails

07-Jun-2011

- Filter out noise events in the ntuple

What's left for the higgs variables:

- trigger info - Need to finish
- Met significance
- Leptons dPt (pt error)
  - muon->innerTrack()->ptError() / muon->pt()
- dR(trigger, mu) < 0.2

06-Jun-2011

- CMSPublic/SWGuideEDMPathsAndTriggerBits

name	descrition
1. Pre-sel	Has a Primary Vertex (as defined above).
	Two opposite charge leptons (as defined above) with 20<m(ll)<500.
	Third lepton veto: no third lepton passing the selection.
2. m(ll)	76.2<=m(ll)<=106.2
3. pT1	pT(l1)>30, leading lepton (with largest pt)
4. pT2	pT(l2)>20, second lepton
5. anti-b	Use Track Counting High Efficiency algorithm on the jets defined above.
	Cut if countHiEff > 2 for any such jet
6. pT(ll)>50	pT(ll)>50
7. pfMet>80	pfMet>80

25-May-2011

- Pile-up reweighting: CMS/PileupReweighting
- Json files for may10rereco: hn

24-May-2011

```
svn co -N svn+ssh://svn.cern.ch/reps/tdr2
  cd tdr2
  svn update utils
  svn update -N notes
  svn update notes/AN-11-119
  cd notes/AN-11-119
  eval `../tdr runtime -csh`
  tdr --style=paper b AN-11-119
```

23-May-2011

- Electrons are too tight??
- Switch from eidTight to simpleEleId80cIso.

What's left for the higgs variables:

- trigger info - Need to finish
- Met significance
- Leptons dPt (pt error)
    - Ele: Distance to partner track
    - Ele: deltaCot(theta) of partner track
    - Ele: Eta of superclaster
    - What is wbtf ids?
- Pt1>30; pt2>20
- dR(trigger, mu) < 0.2

21-May-2011

- Pick up events: CMSPublic/WorkBookPickEvents
- Electrons ID: CMS/VbtfEleID2011

20-May-2011

- Filters for the MET: CMS/MissingETOptionalFilters
- CVS: http://ximbiot.com/cvs/manual/cvs-1.11.23/cvs_16.html
- HZZ skims: CMS/HZZDataSkim

18-May-2011

- For Hcal filter ther is an update from Hcal DPG: CMS/HBHEAnomalousSignals2011

Trigers in

Need separeate trigger bit for mupns and electrons!

- For muons:

bit	name	note
0	HLT_DoubleMu3*	2010
1	HLT_DoubleMu4*	2011, _Acoplanarity*
2	HLT_DoubleMu5*	2011
2	HLT_DoubleMu6*	2011
3	HLT_DoubleMu7*	2011
4	HLT_L2DoubleMu23*	2011
5	HLT_L2DoubleMu35*	2011
6		
7	HLT_TripleMu	2011
8		

16	HLT_Mu9	2010
10	HLT_Mu11	2010
11	HLT_Mu15	2010
12	HLT_Mu20	2011
13	HLT_Mu24	2011
14	HLT_Mu30	2011
15	HLT_IsoMu17	
16	HLT_IsoMu24	
17	HLT_IsoMu30	

- For electrons

18	HLT_Ele15_LW	2010
19	HLT_Ele15_SW	2010
20	HLT_Ele17_SW	2010
21	HLT_Ele15_CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT	
22	HLT_Ele17_CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT	
23	HLT_Ele27_CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT	
24	HLT_Ele32_CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT	
25		
26	HLT_Ele17_CaloIdL_CaloIsoVL_Ele8	
27	HLT_Ele17_CaloIdL_CaloIsoVL_Ele15	
28	HLT_Ele17_CaloIdT_TrkIdVL_CaloIsoVL_TrkIsoVL_Ele8	
29	HLT_Ele17_CaloIdVT_CaloIsoVT_TrkIdT_TrkIsoVT	
30	HLT_DoubleEle10_CaloIdL_TrkIdVL_Ele10	2011
31	HLT_TripleEle10	2011

In v4.3 at 5e32

```
HLT_DoubleMu3_v3         15      5       2       1       1               L1_Double
HLT_DoubleMu4_Acoplanarity03_v1 1       1       1       1       1               L
HLT_DoubleMu6_v1         1       1       1       1       1               L1_Double
HLT_DoubleMu7_v1         1       1       1       1       1               L1_Double
```

```
HLT_L1DoubleMu0_v1          2000    700     300     100     10              L1_Double
HLT_L2DoubleMu0_v2          1500    500     200     70      7               L1_Double
HLT_L2DoubleMu35_NoVertex_v1    1       1       1       1       1               L
HLT_Mu8_Jet40_v2            25      8       3       1       1               L1_Mu3_Je
HLT_TripleMu5_v2            1       1       1       1       1               L1_Double
```

In v8.3 at 5e32

```
HLT_DoubleMu3_v4            180     120     30      18      12      8       6
HLT_DoubleMu4_Acoplanarity03_v2 1       1       1       1       1       1       1
HLT_DoubleMu6_v2            20      1       1       1       1       1       1
HLT_DoubleMu7_v2            1       1       1       1       1       1       1
HLT_L1DoubleMu0_v1          5600    4200    1400    840     560     400     280
HLT_L2DoubleMu0_v3          2000    1400    1000    600     400     280     200
HLT_L2DoubleMu23_NoVertex_v2    1       1       1       1       1       1       1
HLT_Mu8_Jet40_v4            240     150     30      18      12      8       6
HLT_TripleMu5_v3            1       1       1       1       1       1       1
```

Isotracks

- Producing isotrack ntuples from 2011 data.
- Triggers:

bit	name before	name now
0	HLT_IsoTrackHB*	HLT_IsoTrackHB*
1	HLT_IsoTrackHE*	HLT_IsoTrackHE*
2	HLT_MinBias*	HLT_BeamGas*
3	HLT_L1Tech_HCAL_HF* or HLT_L1_HFtech*	HLT_SingleEG*
4	some other	HLT_SingleJet*
5	-	some other

17-May-2011

- andrey_HcalEcalNoise_may16.pdf: Hcal/Ecal noise removal. Met

More to do for Higgs:

- Zplus jets: Met phi in Data vs MC: what is efficiency of hcal/ecal filter.
- Run on reprocessed data

Discriminator:

- BCM1F signal: measure the property of MIP.
- Set the pulse, like MIP, repeat the measurements.
- Made an update at BRM meeting.

13-May-2011

Two variables implemented in the ntuple:

- isNoiseHcal, see CMS/HcalNoiseInfoLibrary
- isDeadEcalCluster, see CMS/SusyEcalMaskedCellSummary

12-May-2011

Variables to include:

- trigger info
- Met significance
- Leptons deltaPt (pt error)
- Electron: many of them for the quality cuts

04-May-2011

- CMS/HiggsZZlLneuNeuEventYield page is updated with objects, cuts and new event yields

03-May-2011

- Slides on CFD950 measurements: [file is removed by request]

20-Apr-2011

- updated the code for Discriminator

- Electrons id: CMS/SimpleCutBasedEleID

18-Apr-2011

- CMS/HiggsZZlLneuNeuEventYield

TCmuon missing pieces:

- nMuonChambersWithHits>1
- rho - what is that?

TCMET class:

- Add eta

17-Apr-2011

Plan for discriminator measurements

- For a given input with zero offset, zero walk, measure the maximum threshold. Same for auto walk.
- Double pulse resolution.
- Minimum pulse distance. Need to adjust the output width. Also the delay since they interfere.
- Measure width hex vs ns. Make aplot. Do for different delay. Find the best delay.
- Code. Need to write it such that to use the command:
    - setDiscr channel width|thresh|delay|etc value
    - Logfile and status of all the channels

14-Apr-2011

BPTX

- [file is removed by request]: discriminator_measurements.pdf

13-Apr-2011

Higgs: DA vertices problem.

If crabs can't get but there are tgz files in the res, in bash:

```
for z in *.tgz ; do tar -zxvf $z ; done
```

12-Apr-2011

КОСМОС НАIII

Discriminator measurements summary

Setting the threshold of the channel

Generator signal on the scope changes a lot when I connect it to the input Original amplitude now is 500mV and connected to the discriminator: 320mV

Rectangular pulses.

- Channel 1: w=-108mV
- Channel 2: w=+70mV
- Channel 3: Walk= -98mV is the boundary for 50Ohm on the scope

or -61mV for 1MOm

- Channel 5: -100mV
- Channel 7: -96 mV
- Channel 1: -100mV (-52mV)
- Channel 2: -87mV (-48mV)

- **High frequency test (channel 2)**:

for the distance of 85 ns between pulses. It works Ok - all the output impulses are seen.

06-Apr-2011

BPTX

- It starts at crates 17-18 (QUAD CFD 935) - first discriminator. Output signal length was 40ns
- Then goes to the second discriminator 05-06 (621 CL). Output signal length was 24ns here
- Logic: AND, OR
    - ♦ For BPTX AND - width is adjustable
- Short U-cable is needed to delay input signal

- The code for new discriminator is tested. It's working.
    - ♦ Read value needs to be subtracted 0xffff0000 etc. Why?

- The code needs to be rewritten so to call _hex functions from main functions.

05-Apr-2011

- CMSSW_4_2_0 is not backwards compatible

04-Apr-2011

Higgs. Objects and cuts (by Adish)

- Moved to the dedicated pages. See up

dnDeta.

The tag for the latest version of analysis: **V00-08-02**

02-Apr-2011

- cool page from tracking: https://test-cms-trackingpfg.web.cern.ch/test-cms-trackingPFG/plots/results.php

28-Mar-2011

- Pedestals: the list of diffs needed.

22-Mar-2011

- Attended Radiation protection course
- BRM meeting

Pedestals

- To do
  - Send the jobs to batch! -- log.txt for all printouts
  - Errors
  - diffpedestals \t\t
  - cfg files: electronic map, global tags
  - Need a summary of changes for all the processed runs
  - edit first script: pos = substringLength(dataset) + fixnumber

- Error when running the pedestal job (STDOUTPUT):

```
---- endJob BEGIN
cms::Exception caught in Schedule::endJob
---- FatalRootError BEGIN
Fatal Root Error: @SUB=TFile::WriteBuffer
error writing to file 159378-peds_ADC.root (-1) (No such file or directory)
A cms::Exception is going through WorkerT
```

- Errors when unzipping the file: error: cannot create 159018-peds_ADC_10800.txt

21-Mar-2011

Pedestals.

Part 1. Sending jobs

```
cmsrel CMSSW_3_11_0
cd CMSSW_3_11_0/src/
cmsenv
cvs co CalibCalorimetry/HcalStandardModules
scram b
cd CalibCalorimetry/HcalStandardModules/test
```

- In test look for the file **pedestalSendJobs.csh**. You need to edit:
  - beginRunNumber
  - datasetName
- Then just run the script:

```
./pedestalSendJobs.csh
```

- The jobs will be sent to cmscaf. That's it for the part 1!

Part 2. Producing the payloads

- Once all the jobs are finished (you can check it by typing **bjobs** command), a file **pedstxt.zip** should appear in the directory.

The size of this file may be ~50 if many rans were analyzed. You have to multiply it by 4 - actual disk space that may be needed. Check your quota.

- You may remove LSFJOB_* and batch_*
- Look at the script **pedestalProducePayload.csh**. There you also need to change:
  - beginRunNumber
  - and maybe the tagName
- Run the script:

```
./pedestalProducePayload.csh
```

16-Mar-2011

Pedestals

- Open question: do we need ElectronicsMap tag for channels check script?

```
record = cms.string('HcalElectronicsMapRcd'),
tag = cms.string('HcalElectronicsMap_v7.03_hlt')
```

14-Mar-2011

- Answers to dNdEta questions posted on hn

03-Mar-2011

dNdEta

- Shapes of dNdEta for individual Ms don't seem to 'improve' after re-weighting.

26-Feb-2011

- Answers to Andrea's questions were posted to hn

24-Feb-2011

- Setup 64bit environment (for CMSSW_3_4_X)

```
setenv SCRAM_ARCH slc5_amd64_gcc434
```

- DB tools: slides

```
cmscond_export_iov -s sqlite_file:test.db -d oracle://cms_orcoff_prep/CMS_COND_HCAL -P /afs/cern.
```

21-Feb-2011

- CMS/PileupInformation

Useful c-shell manuals:

- http://www.softpanorama.org/Scripting/Shellorama/Reference/string_operations_in_shell.shtml
- http://www-cs.canisius.edu/ONLINESTUFF/UNIX/shellprogramming.html
- http://www.grymoire.com/Unix/Csh.html

10-Feb-2011

- Start answering the questions from Andrea Venturi

09-Feb-2011

- Run isotracks ntuples for early data. (MinBias, p>5 gev, tech bits)
- dNdEta stat errors in public/dndeta

07-Feb-2011

- Talk on MBUE meeting
- Updated QIE conditions.
- Need to send stat+syst plots for dNdEta (send to Regina)

04-Feb-2011

- Updated Channel quality instruction. Tested QUI - works.
- Need to produce new Pedestals (for HI data), MC tag for pedestals. MC Channel quality and QIE (on Monday)
- Updated Common plots for PAS: http://andrey.web.cern.ch/andrey/work/dndeta/feb_04/
- Common dNdEta plots by Regina: http://rkwee.web.cern.ch/rkwee/plots/commonplots/

In emacs to search and replace with a new line: C-q, C-j

01-Feb-2011

- diffs.pdf: systematics study on dNdEta
- reweight.pdf: Impact on BeamSpot reweighting on dNdEta
- dNdEta_Comparisons_1-31-11.pdf: Comparisons by Rick Field

31-Jan-2011

Copy and paste a rectangle in emacs:

- Ctrl+Space
- Move the cursor
- Crtl+x r k to kill
- Ctrl+x r r r to copy
- Ctrl+x r y to paste

29-30-Jan-2011

- Numbers for dNdEta provided to Rick:
  - dndeta_points.txt: CMS, 7TeV
  - dndeta_points_900.txt: CMS, 900GeV
  - data_points_atlas_7TeV.txt: Atlas, 7TeV
  - data_points_atlas_900GeV.txt: Atlas, 900GeV

28-Jan-2011

- diffraction_pv.pdf: Notes for ARC. Diffraction events, PV filter efficiency, e_central, eff dependence on multiplicity

25-Jan-2011

Isotracks

- Sent jobs for Run2010A data. Dec22ReReco

24-Jan-2011

- Not many MinBias samples with pile-up fond. Example:

/MinBias/Spring10-START3X_V25B_156BxLumiPileUp-v1/GEN-SIM-RECO

23-Jan-2011

- chi2/ndof selection of PV does make an effect! (3.0 to 2.9; 2.42 to 2.35)

19-Jan-2011

```
// set up the tdr style
gROOT->ProcessLine(".L ../data/tdrstyle.C");
```

```
setTDRStyle();
```

18-Jan-2011

- Nate's VBF: https://twiki.cern.ch/twiki/bin/view/Main/VBFqcdBG

dNdEta

- Talked with ARC.
- Created scripts for the condor batch

```
Arguments = Z2 5
universe = vanilla
Executable = dndeta_run_analysis.csh
Requirements = Memory >= 199 &&OpSys == "LINUX"&& (Arch != "DUMMY" )&& Disk > 1000000
Should_Transfer_Files = YES
WhenToTransferOutput = ON_EXIT
Transfer_Input_Files =
Output = report_$(Cluster)_$(Process).stdout
Error = report_$(Cluster)_$(Process).stderr
Log = report_$(Cluster)_$(Process).log
notify_user = andreypz@FNAL.GOV
#+LENGTH="SHORT"
Queue
```

- dndeta_run_analysis.csh.txt: dndeta_run_analysis.csh

17-Jan-2011

HCAL Conditions

- lxplus4 is not supported any longer. So need to switch to a newer release fo the Channel Quality loading. Update the tutorial for operation guys.

16-Jan-2011

- Updated the plots. More statistics: http://andrey.web.cern.ch/andrey/work/dndeta/jan_16/
- Checked stability, using vz<10cm on PV (in MC) - OK

Updates for the PAS:

- 0.8M for 7 TeV and 5.4M for 900 GeV. see table.txt
- Numbers for line 144
    - Pileup number for 900 GeV run 134721 is 1.4%, fraction = 0.30 +/- 0.05, therefore f_MV = 0.30* 0.14 = 0.004 +/- 0.0006

(all estimates, so maybe increase the error here)

-
    - No lines between 141 and 142. Could you add them, so that ARC can comment
    - Figures 3 are not necessary and should be removed so not to rise questions.
- Fig. 4 (plot for 0.9 TeV).
    - It is the same for 0.9 TeV
- Missing numbers in Table 2 for f_m0 at 0.9 GeV

eta0.8	0.00019	0.00002

eta2.4	0.00150	0.00017

- Numbers needed in line 200 and 203.

```
7TeV:
eta08pt05: 2.999 +/- 0.043
eta08pt10: 1.676 +/- 0.046
eta24pt05: 2.437 +/- 0.037
eta24pt10: 1.144 +/- 0.022

0.9 TeV:
eta08pt05: 1.816 +/- 0.031
eta08pt10: 1.056 +/- 0.047
eta24pt05: 1.359 +/- 0.025
eta24pt10: 0.609 +/- 0.011
```

14-Jan-2011

- Preapproved MBUE common plots (QCD-10-024)

13-Jan-2011

- Uncertainities
- Updates: http://andrey.web.cern.ch/andrey/work/dndeta/jan_13/

11-Jan-2011

- To do: check D6T vs Z2, Summer vs Spring vs Fall
  - Note there is no Spring10 Z2 sample
- CMS/Internal/TdrProcessing
- JSON selection, used for *json* output files
  - {"132599":[[1,379],[381,437]]}
  - {"133874": [[166, 297], [299, 721], [724, 814], [817, 864]]}
  - {"134721": [[294, 468], [470, 677], [679, 1190], [1195, 1337]]} (900 GeV)

10-Jan-2011

```
ispell -d american paper.tex
```

dNdEta

- No need to use PVs withBS (comment from Andrea)
- ToDo: Errors propagation
- remove events with >1 PV

- dndeta_jan10.pdf: Comparisons with Atlas, +/- and different tunes
- http://andrey.web.cern.ch/andrey/work/dndeta/jan_10/

09-Jan-2011

dNdEta TODO

- plots here:: http://andrey.web.cern.ch/andrey/work/dndeta/jan_09/

- The cut on nLayers with measuremetns>=6 does make a difference. It changes the shape of the final answer.
    - ♦ On the ptError/pt plots, those bumps are gone because of numLayers>=6 cut.
    - ♦ On the plot of numLayers, ptErr/pt <0.1 cut is also applied

- The plots of Ndof for PV is on the bottom of the page.
- Fits of d0 and dz of tracks give somewhat controversial results:

Initially, before fitting:

param	d0	dz
Prime fraction	0.939 +/- 0.001	0.954 +/- 0.001
Second fraction	0.061 +/- 0.000	0.046 +/- 0.000

After fitting:

param	d0	dz
Prime fraction	0.933 +/- 0.001	0.958 +/- 0.001
Second fraction	0.067 +/- 0.000	0.042 +/- 0.000

- So, the fitting doesn't really improve anything (it's already a good

agreement in data/MC).

- The controversial thing is that fraction of primes vs non-primaries

are different when using d0 or dz for it's estimate. 93% to 96%, therefore the error could be assigned.

See also plots q01-q04

- PV z1-z2 fitting
    - ♦ Given new distribution, the formula 4 in the Note needs to be changed to:

frac = int_[-0.5, 0.5](fit) - int_[-0.5, 0.5](hist) / int[-10,10](hist)

frac = 0.40 +/- 0.05

* Now, in new MC and rereco we have the following fractions of events with >=2 PVs (eps):

- ♦ MC, eps = 0.065-0.085, depending on the tune. It is 0.085 for Z2
- ♦ For data run 132599, eps = 0.097.
- ♦ The difference between Data and Z2 = 0.097-0.085 = 0.012. i.e. 1.2%

Which is consistent with pileup (?)

- The correction f_MV = 0.40*0.012 = 0.004 +/- error. We should only

correct for the pile-up part, not for the fakes part. (That's what I think Didier pointing out)

- for 900GeV run eps = 0.073 and for MC eps = 0.009)
- All numbers are after PV filter applied.
- see plots q05-q06

- Events, table 2 produced *Need to say in the table that the fractions are taken with respect to the total (comment from Didier)

- Other comments.
  - For the table of uncertainties it should be stated that those errors are the individual effects to the final result after propagation
  - From the PAS the left plots on figure 5 needs to be removed. They are not needed and confusing. Plots on figure 1 are enough. Right plots on figure 5 maybe also not needed. They where there to show fM0 correction.
  - But now it is negligible (0.001 as highest, I sent numbers yesterday) So maybe we only need to say that in words. (following discussion with Didier)

08-Jan-2011

dNdEta TODO

- Produce results with ndof>0, z<24, d<2
- Check old MC vs new MC
- remove events with >1 PV
- plot nTracksPV1 and PV2, ndof and d0
- Study effect of numlayers and pterror/pt
- Obtain new f_MV correction - fit
- Change to PVwithBS and repeat

06-Jan-2011

Command line DBS search, example:

```
dbsql "find site,dataset where dataset like *DiPion*RECO*"
```

dNdEta

- dndeta_jan06.pdf: document

05-Jan-2011

Lumi

- Email from Michael:

```
Hi Andrey,

I confirmed my speculation that you are losing
events due to your selection of the PV with the
best reduced chi-squared.   Here is an example:

XX--------- Event 55894630 ----- LS 681 ---------------XX
 nRecoTracks:   7
 nGoodVertices: 1
 L1 bit:        -1
 time: 1273359965
--vertex collection--
 1  good? 1  z,rho: -3.02243, 0.09826  NDOF= 98.07379  nTr= 51
chisq= 69.06721  chisq/NDOF= 0.70424
 2  good? 0  z,rho: 3.66537, 0.09699  NDOF= 3.94125  nTr= 2
chisq= 1.82897  chisq/NDOF= 0.46406
--good tracks--  MS version
 1  dz= 0.00308        dxy= -0.00517   OK? 1
 2  dz= -0.00397       dxy= -0.00156   OK? 1
 3  dz= 0.00284        dxy= -0.00387   OK? 1
```

```
 4  dz= 0.02380        dxy= -0.00662   OK? 1
 5  dz= 0.04848        dxy= 0.01672    OK? 1
 6  dz= 0.22976        dxy= 0.13336    OK? 1
 7  dz= -0.02565       dxy= 0.00960    OK? 1
 8  dz= -0.61894       dxy= 0.84605    OK? 0
 9  dz= -15.83611      dxy= -17.21055  OK? 0
 *** number of good tracks = 7
--good tracks--  AP version
 1  dz= -6.68518       dxy= -0.00425   OK? 0
 2  dz= -6.69157       dxy= -0.00034   OK? 0
 3  dz= -6.68542       dxy= -0.00474   OK? 0
 4  dz= -6.66375       dxy= -0.00685   OK? 0
 5  dz= -6.63977       dxy= 0.01578    OK? 0
 6  dz= -6.45846       dxy= 0.13278    OK? 0
 7  dz= -6.71361       dxy= 0.01008    OK? 0
 8  dz= -7.30644       dxy= 0.84677    OK? 0
 9  dz= -22.52365      dxy= -17.21180  OK? 0
 *** number of good tracks = 0
```

There are two PV, one with 51 tracks, and one
with 2 tracks. You take the one with 2 tracks.
As a result, none of the 7 good tracks is
selected and you lose the event. There are
several examples like this one.

Important: in your code you do not check isValid
for the vertex. For many cases in which you lose
an event that I retain, isValid is false.

In other events, you lose tracks but you do not
lose the event. Thus your multiplicity distribution
will differ from mine, even for events that we
both select. Attached is a plot of the difference
in the number of selected tracks.

(Note there is one event in which you have 2 tracks
and I have one. It turns out that you have 2 tracks
coming from in invalid vertex, and I have a different
single track coming from a valid one.)

It turns out that the requirement of the lowest
chisq/ndof strongly biases the selection toward
vertices with fewer tracks. The second attached
plot shows the bias. The larger histogram is the
number of tracks for all PV without any cuts. The
smaller shows the number of tracks for those
vertices you select when there is a choice (ie,
when there is more than one PV).

It looks like this effect accounts for a 1.2%
difference in yield, but I am not sure of this
number because I released the trigger requirement
in order to have more events to work with.

My conclusion is that choosing one and only one
vertex on the basis of chisq/ndof is a mistake
for this topic, and I'm not sure I can derive a
correction for it. We could modify your code so
that it makes the same requirements as mine, but
then Radek would have to run the jobs, including
the MC. The alternative is that I develop code
to unfold the multiplicity distribution myself.
It is not hard and your code provides an example.

Suggestions?

regards,

```
Michael
```

Isotracks

- Updates the code (propagator used from Calibration package)
- Run on single particles. castor -> NTUPLES

dNdEta

- dxy and dz of a track are calculated correctly. except for the case of vertex ndof = 0

- Need to change the M-binning. No cuts on dz and dxy for those tracks.
- PV filter: ndof >0, z<35, d0<20

04-Jan-2011

noPV problem needs to be solved - multiplicity bin failure.

dNdEta

- Run Fall10 D6T MC
- Run Sept14 ReReco data
- PV problem

```
Warning, warning.   N prim vert:1
PV ndof: 0  z: 0.0580763   d0: 0.0963888
M: 0  1  first track pt: 0.49728   eta: -0.34736
numLay: 8 dz: -0.143579  d0: 0.158339
```

03-Jan-2011

dNdEta

- PV filter changes (independantly)
  - z from 15 to 24 - big efect
  - ndof from 4 to 3 - no effect
  - d0 from 2 to 6 - no effect
- d0 and dz for data/mc ratio changes a lot with eta of the tracks.

Lumi

- HLT_ZeroBias prescaling is 10*59 = 590

-- AndreyPozdnyakov - 10-Jan-2011

This topic: Sandbox > AndreyPozdnyakovLogBook11
Topic revision: r194 - 2012-01-06 - AndreyPozdnyakov