



RPC Offline DQM at CAF

Sungkyunkwan University

26. 09. 09 Sungeun Lee

Outline

- CAF Activity
- Torino Workshop about CRAFT08 Analysis (11.03.09 ~13.03.09) and it's Analysis Paper
- Prompt Analysis Tool Coding and Debugging
- Noise Study
- Manual for New CAF Shifters
- Summary

CAF Activity Shifts for MWGR

Year: 2009 Month: April Shift type: RPC - CAF Show

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
		1	2	3	4	5
6	7	8 07:00~15:00 LEE, Sungsoo(m) 15:00~23:00 LEE, Sungsoo(m)	9 07:00~15:00 TENO, Hayun(m) 15:00~23:00 LEE, Sungsoo(m)	10	11	12
13	14	15	16	17	18	19
20	21	22 07:00~15:00 TENO, Hayun(m) 15:00~23:00 TENO, Hayun(m)	23 07:00~15:00 LEE, Sungsoo(m) 15:00~23:00 LEE, Sungsoo(m)	24	25	26
27	28	29 07:00~15:00 TENO, Hayun(m) 15:00~23:00 TENO, Hayun(m)	30 07:00~15:00 LEE, Sungsoo(m) 15:00~23:00 LEE, Sungsoo(m)			

April

Year: 2009 Month: May Shift type: RPC - CAF Show

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
				1	2	3
4	5	6 07:00~15:00 TENO, Hayun(m) 15:00~23:00 LEE, Sungsoo(m)	7 07:00~15:00 TENO, Hayun(m) 15:00~23:00 LEE, Sungsoo(m)	8	9	10
11	12	13 07:00~15:00 TENO, Hayun(m) 15:00~23:00 LEE, Sungsoo(m)	14 07:00~15:00 TENO, Hayun(m) 15:00~23:00 LEE, Sungsoo(m)	15	16	17
18	19 07:00~15:00 TENO, Hayun(m) 15:00~23:00 LEE, Sungsoo(m)	20 07:00~15:00 TENO, Hayun(m) 15:00~23:00 LEE, Sungsoo(m)	21	22	23	24
25	26	27 07:00~15:00 TENO, Hayun(m) 15:00~23:00 LEE, Sungsoo(m)	28 07:00~15:00 TENO, Hayun(m) 15:00~23:00 LEE, Sungsoo(m)	29	30	31

May

Year: 2009 Month: June Shift type: RPC - CAF Show

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	2 07:00~15:00 TENO, Hayun(m) 15:00~23:00 LEE, Sungsoo(m)	3 07:00~15:00 TENO, Hayun(m) 15:00~23:00 LEE, Sungsoo(m)	4 07:00~15:00 PARK, Yoon(m) 15:00~23:00 TUPPITI, Salyang(m)	5 07:00~15:00 OCAMPO, BIOD, Albert Andres(m) 15:00~23:00 LEE, Sungsoo(m)	6	7
8	9	10	11	12	13	14
15	16	17 07:00~15:00 KIM, Zee(m) 15:00~23:00 VERWILLIGEN, Pa(m)	18 07:00~15:00 LEE, Sungsoo(m) 15:00~23:00 VERWILLIGEN, Pa(m)	19	20	21
22	23	24	25	26	27	28
29 15:00~23:00 No Shifter	30 07:00~15:00 TENO, Hayun(m) 15:00~23:00 LEE, Sungsoo(m)					

June

Year: 2009 Month: July Shift type: RPC - CAF Show

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
		1 07:00~15:00 TENO, Hayun(m) 15:00~23:00 LEE, Sungsoo(m)	2 07:00~15:00 TUPPITI, Salyang(m) 15:00~23:00 LEE, Sungsoo(m)	3 07:00~15:00 TENO, Hayun(m) 15:00~23:00 LEE, Sungsoo(m)	4	5
6	7	8	9 No Shifter	10	11	12
13 07:00~15:00 ABBRESCIA, Marcell(m) 07:00~15:00 TUPPITI, Salyang(m) 15:00~23:00 VERWILLIGEN, Pa(m)	14 07:00~15:00 ABBRESCIA, Marcell(m) 07:00~15:00 VERWILLIGEN, Pa(m)	15 07:00~15:00 VERWILLIGEN, Pa(m) 15:00~23:00 KIM, Zee(m)	16 07:00~15:00 VERWILLIGEN, Pa(m) 15:00~23:00 ABBRESCIA, Marcell(m)	17 07:00~15:00 VERWILLIGEN, Pa(m) 15:00~23:00 ABBRESCIA, Marcell(m)	18 07:00~15:00 ABBRESCIA, Marcell(m) 15:00~23:00 KIM, Zee(m)	19 07:00~15:00 TENO, Hayun(m) 15:00~23:00 LEE, Sungsoo(m)
20 07:00~15:00 KIM, Zee(m) 15:00~23:00 VERWILLIGEN, Pa(m)	21 07:00~15:00 LEE, Sungsoo(m) 15:00~23:00 VERWILLIGEN, Pa(m)	22 07:00~15:00 KIM, Zee(m) 15:00~23:00 VERWILLIGEN, Pa(m)	23 07:00~15:00 KIM, Zee(m) 15:00~23:00 VERWILLIGEN, Pa(m)	24 07:00~15:00 KIM, Zee(m) 07:00~15:00 No Shifter 15:00~23:00 JOO, Minje(m) 15:00~23:00 LEE, Sungsoo(m)	25 07:00~15:00 SHIN, Seung(m) 15:00~23:00 KIM, Zee(m)	26 07:00~15:00 TENO, Hayun(m) 15:00~23:00 LEE, Sungsoo(m)
27 07:00~15:00 TUPPITI, Salyang(m) 07:00~15:00 PACLUCCI, Paolo(m) 15:00~23:00 LEE, Sungsoo(m)	28 07:00~15:00 TENO, Hayun(m) 07:00~15:00 HEO, Luke(m) 15:00~23:00 KIM, Hyonshik(m)	29 07:00~15:00 SEO, Eunje(m) 15:00~23:00 KIM, Zee(m)	30 07:00~15:00 SEO, Eunje(m) 15:00~23:00 KIM, Zee(m)	31 07:00~15:00 SEO, Eunje(m) 07:00~15:00 HEO, Luke(m) 15:00~23:00 KIM, Zee(m)		

July

CAF Activity

RPC Prompt Analysis Meeting

<http://indico.cern.ch/conferenceDisplay.py?confId=60517>

The screenshot shows the Indico interface for a conference titled "RPC Analysis and Prompt Analysis" on Tuesday 09 June 2009, from 11:00 to 13:30. The location is Europe/Zurich at CERN (J-1-025), chaired by Raffaello Trentadue (Università di Bari). The agenda includes:

- 11:00 News about prompt analysis tools (20) by Raffaello Trentadue (Univ. + INFN)
- 11:20 Prompt analysis results from the last MWGR (20) (Slides) by Sungeun Lee (Sungkyunkwan Univ., Dept. of Phys.-Unknown-Unknown)
- 11:40 Noise study (20) (Slides) by Alberto Andres Ocampo Rios (Universidad de Los Andes)

Footer: CERN | Powered by CERN Indico 0.96.2.20090904 | pcuds70 | http://indico.cern.ch/event/60517 | Last modified 09 June 2009 09:17 | HELP

Tuesday 09 June 2009

<http://indico.cern.ch/conferenceDisplay.py?confId=61914>

The screenshot shows the Indico interface for a conference titled "RPC Prompt Analysis" on Monday 15 June 2009, from 09:30 to 11:30. The location is Europe/Zurich at CERN (354-1-016). The agenda includes:

- 09:30 MWGlobal Run analysis update (20) (Slides) by Sungeun Lee
- 09:50 Current update (20) by Boris, Jangho Kim
- 10:10 Noise Discussion (30) (Slides) by Raffaello Trentadue, Alberto Ocampo, Davide Piccolo
- Discussion session

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Monday 15 June 2009

CAF Activity **RPC DPG Meeting**

<http://indico.cern.ch/conferenceDisplay.py?confId=61997>

category | view: Indico style | manage | LOCAL: Europe/Zurich | ©LEE, Sungeun - logou

Tuesday 16 June 2009

RPC DPG Meeting

Tuesday 16 June 2009
from 09:30 to 13:00
Europe/Zurich
at CERN (40-2-A01)
chaired by: *Marcin Konecki (University of Warsaw)* , *Marcello Maggi (INFN Bari)*

Description: modification passwd rpcdpg

Tuesday 16 June 2009 | [top](#)

Tuesday 16 June 2009

10:00	Craft Paper news (10)	Slides	Davide Piccolo (Univ. + INFN)
10:20	Cluster Size and Endcap Results (30)	Slides	Camilo Andres Carrillo Montoya (Universidad de Los Andes)
10:50	Follow Up on Noise studies (40)	Slides	Noise Team
	• tool for studies of noisy RPC hits not associated to DT segments (15)	Slides	Davide Piccolo (Univ. + INFN)
11:30	Results on recent MWGR (40)	Slides	Sungeun Lee (Prompt Analysis Team)

CERN | Powered by CERN Indico 0.96.2.20090904 | pcuds71 | [✉](mailto:pcuds71@cern.ch) | <http://indico.cern.ch/event/61997> | Last modified 16 June 2009 10:11 | [HELP](#)

11:30 Results on recent MWGR (40) (Slides)

Sungeun Lee (Prompt Analysis Team)

Torino Workshop about CRAFT08 Analysis (11.03.09~13.03.09)

Status of the RPC Systems in the CMS Experiment

Camilo Carrillo

on behalf of the RPC Group

Raffaello Trentadue

Alberto Ocampo

Salvatore Tupputi

Sungeun Lee

Jaeho Kim

Haiyun Teng

Boris Pavlov

RPC Noise studies using CRAFT data

Alberto Ocampo
on Behalf of the RPC Group

Raffaello Trentadue

Camilo Carrillo

Salvatore Tupputi

Sungeun Lee

Jaeho Kim

Haiyun Teng



International CMS Workshop on
Cosmic ray data analysis



Departamento de Física
UNIVERSIDAD DE LOS ANDES
Bogotá, Colombia

International CMS Workshop
on Cosmic ray data analysis



CRAFT08 Analysis Paper

CMS CFT 09-010

DRAFT CMS CRAFT Performance Note

The content of this note is intended for CMS internal use and distribution only

2009/08/21

Archive Id: 1.3

Archive Date: 2009/07/20 12:09:00

Measurements of RPC performance in CMS with cosmic
rays

the CMS Collaboration



CRAFT08 Analysis

HV & Efficiency Plots

Efficiency vs HV

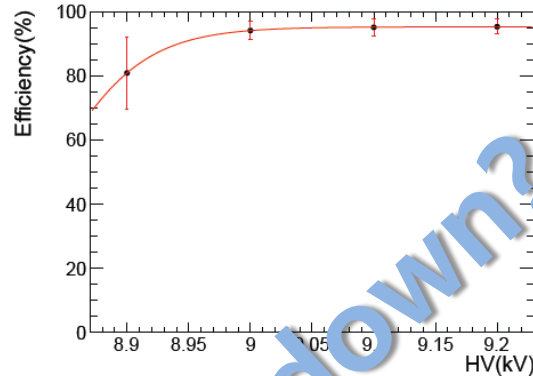


Figure 14: Example of efficiency vs applied voltage curve.

50% of Efficiency HV Distribution

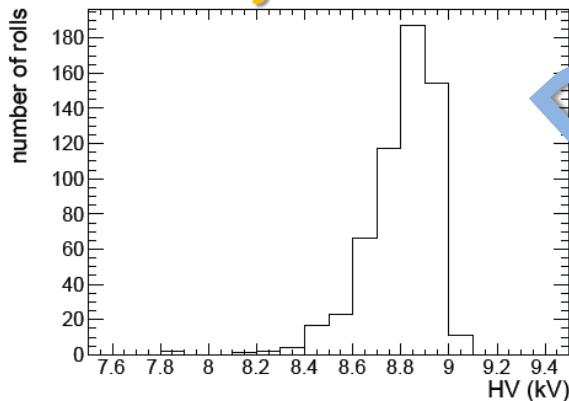


Figure 16: Distribution of the high voltage at which the efficiency reaches 50% of its maximum value as extracted from the fit to the sigmoidal function.

Maximum Efficiency Distribution

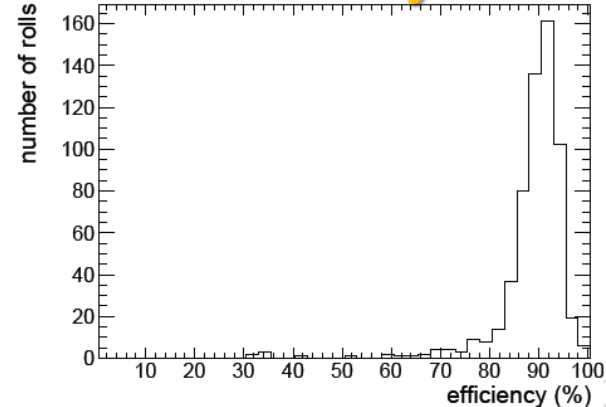
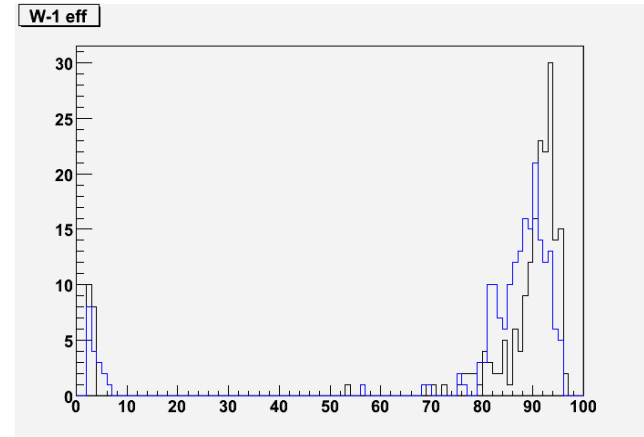


Figure 15: Distribution of maximum efficiency as extracted from the fit to the sigmoidal function.

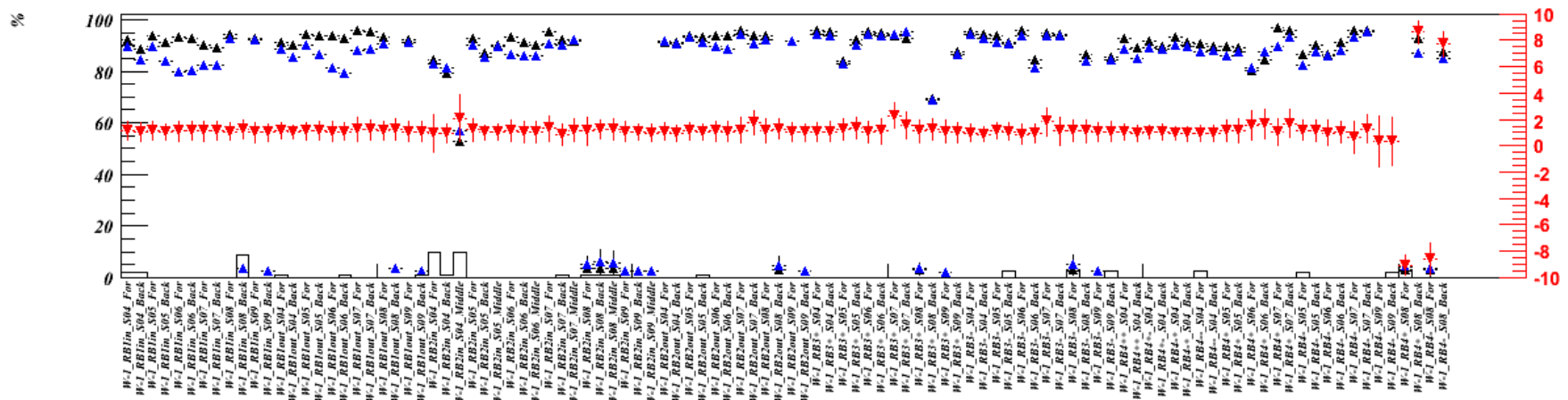
Prompt Analysis Tool Coding

98167

- Efficiency of STA
- Efficiency of DTS
- Bx

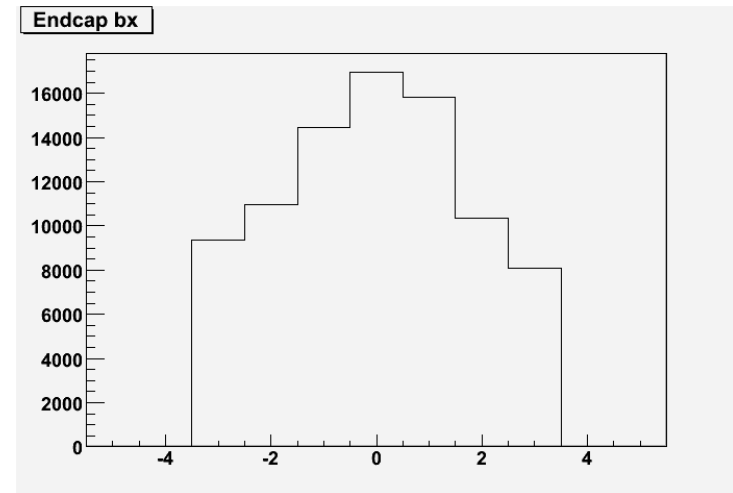
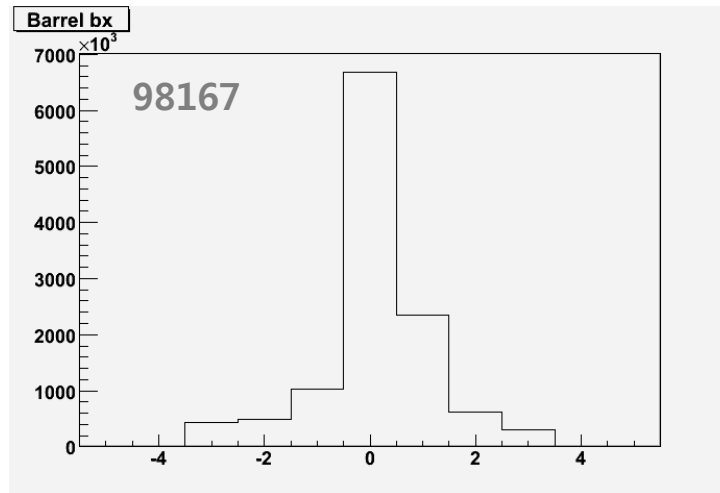


W-1 Far



Prompt Analysis Tool Coding

- Implementation of Bx Distribution of Barrel and Endcap

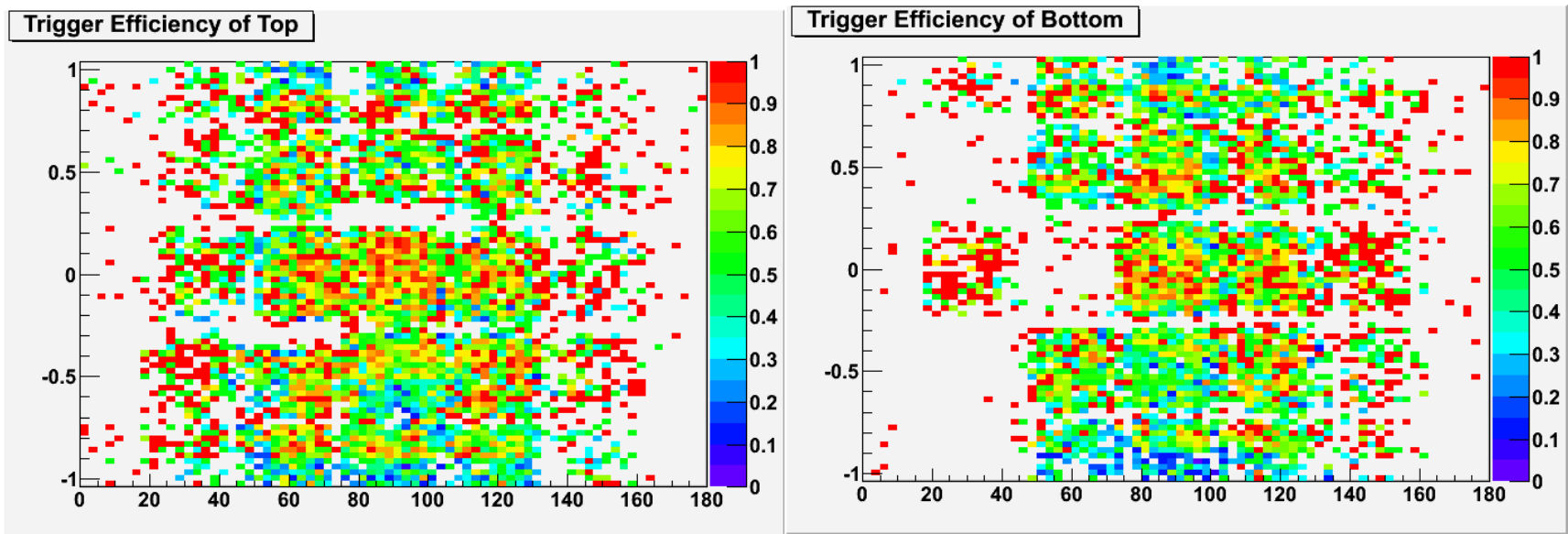


- Including of HV Scan Code in Prompt Analysis Tool with CAF Manager, Raffaello.

Prompt Analysis Tool Coding

- Coding of Implementation of Top & Bottom Trigger Efficiency with Alberto

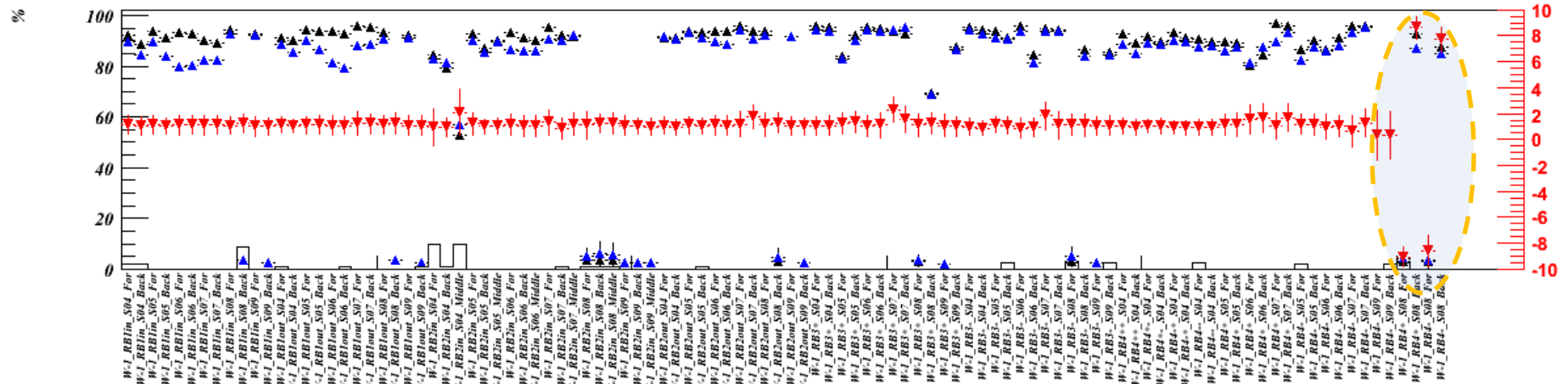
$$\text{Trigger Efficiency} = \frac{\text{RPC Trigger}}{\text{DT Trigger}}$$



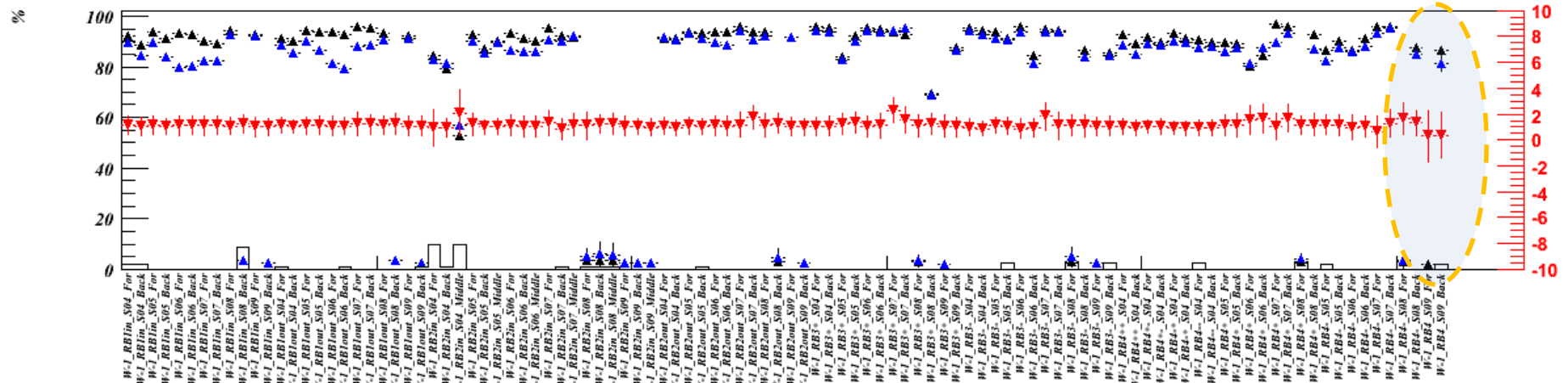
Prompt Analysis Tool Debugging

- Example 1

W-1 Far 98167 Before



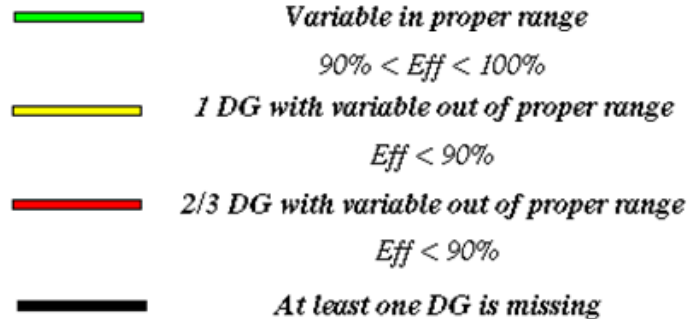
W-1 Far 98167 After



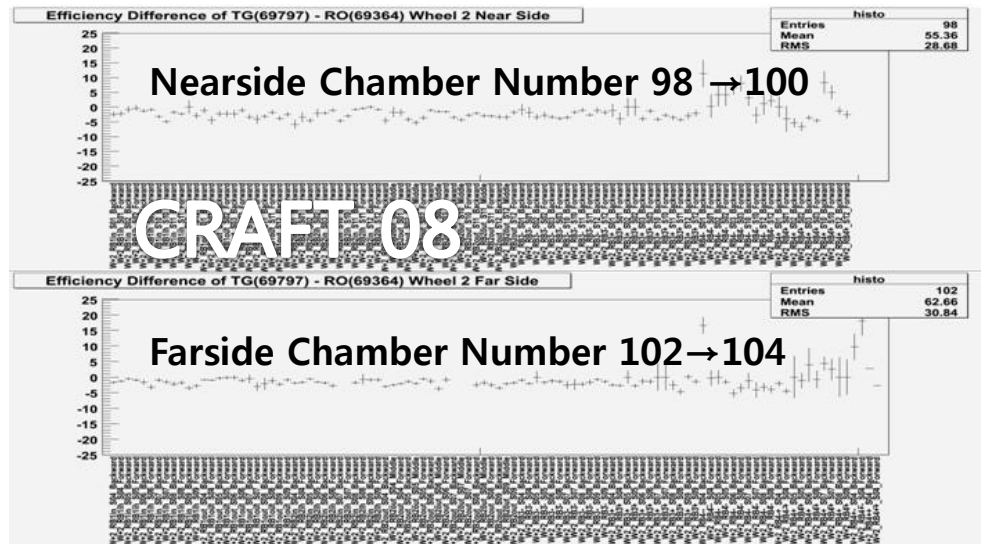
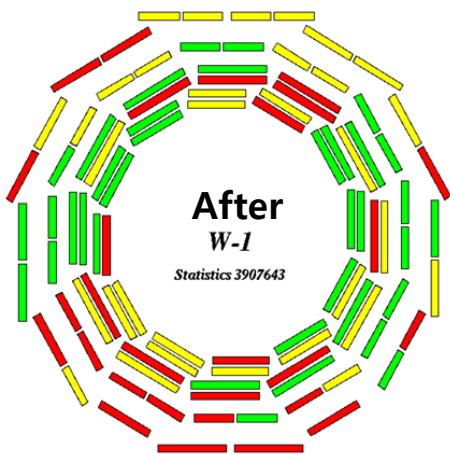
Prompt Analysis Tool **Debugging**

• Example 2

RPC Barrel Efficiency of 98167



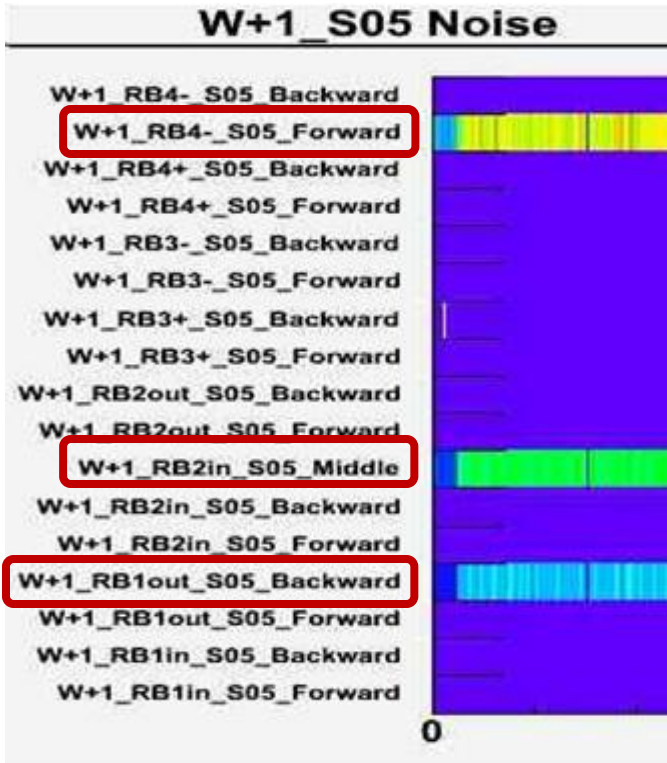
RB4 Sector 9 RB4 Sector 11



Noise Study

Definition of Noisy Chamber

In Elog Report ...
 The blue one means a missing chamber.
 The red one means a noisy chamber.
 The green one is just normal.



Noisy Chambers are...
 Wheel +1 RB4- S05 Forward,
 Wheel +1 RB2in S05 Middle
 Wheel +1 RB1out S05 Backward

Chamber	Run Number	03001	03004	03090	03091	03092	03093
W-0 All of the chambers are empty.							
W-1 RB4- S05 Forward							
W-1 RB2in S05 middle							
W-1 RB2out S05 Backward							
W-1 RB2in S05 Forward							
W-1 RB2in S05 Backward							
W-1 RB2in S05 Forward							
W-1 RB4+ S11 Backward							
W-1 RB4+ S11 Forward							
W-1 RB3+ S02 Backward							
W-1 RB3+ S02 Forward							
W-1 RB4- S06 Backward							
W-1 RB4- S06 Forward							
W-1 RB4- S06 Backward							
W-1 RB4- S06 Forward							
W-1 RB3- S06 Backward							
W-1 RB3- S06 Forward							
W-1 RB3+ S06 Backward							
W-1 RB3+ S06 Forward							
W-1 RB4- S06 Backward							
W-1 RB4- S06 Backward							
W-1 RB3- S06 Backward							
W-1 RB3+ S06 Backward							
W-1 RB4+ S09 Backward							
W-1 RB4+ S09 Forward							
W-1 RB4+ S11 Backward							
W-1 RB4+ S11 Forward							
W-1 All of the chambers are empty.							
W-2 All of the chambers are empty.							

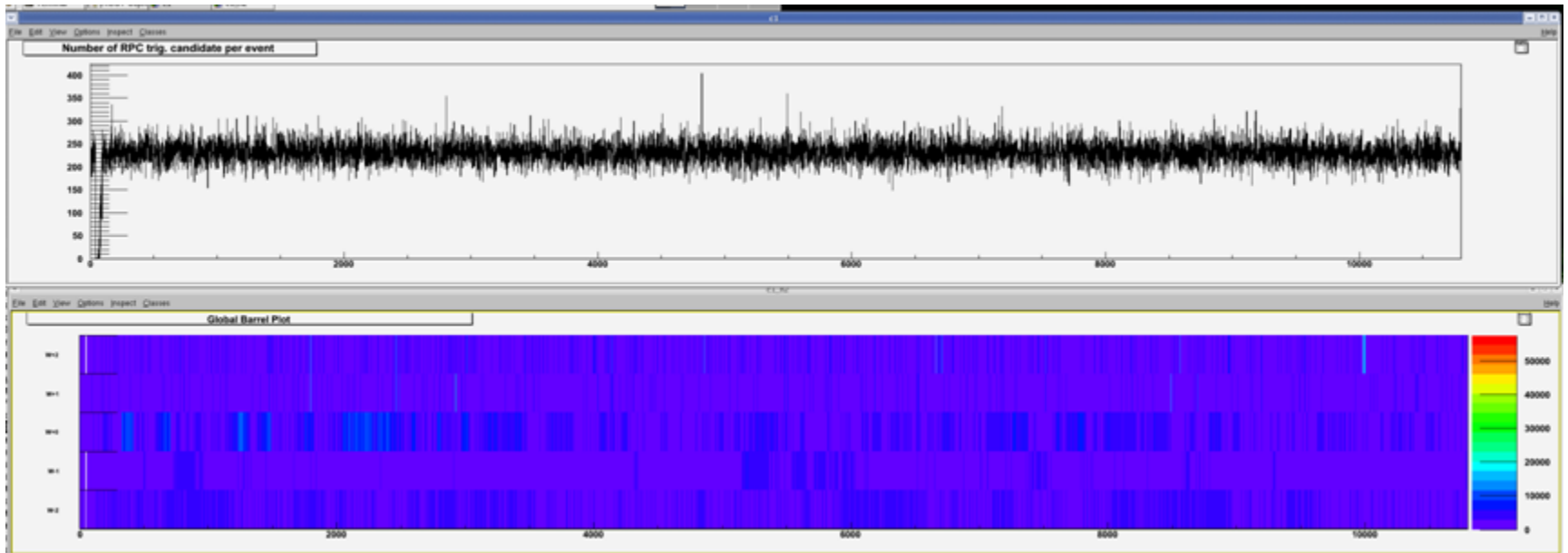
Noise Study

Correlation of Trigger & Noise

To know where and when chambers were noisy, Compare ...

Number of RPC Trigger

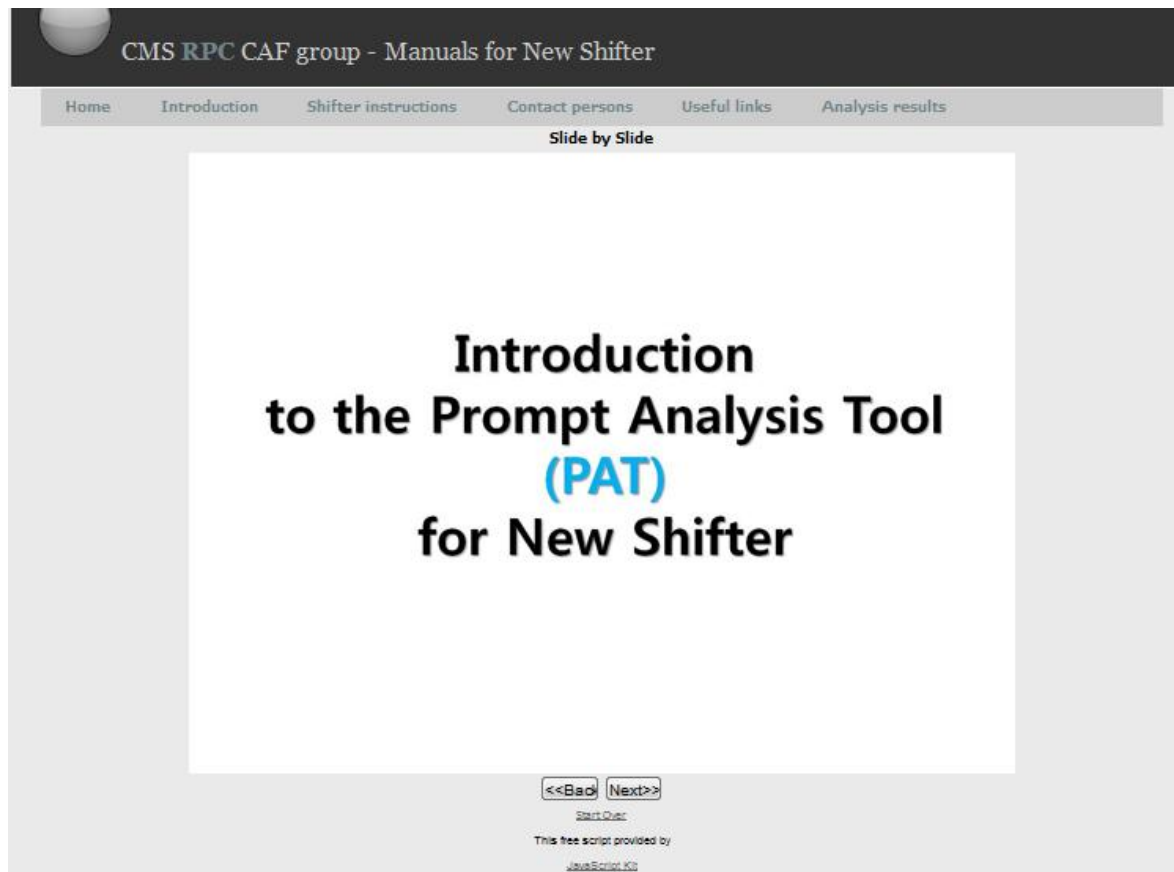
98310



Global Barrel Noisy Plot

Manual for New CAF Shifters

<http://trentad.web.cern.ch/trentad/CAF/Manuals.html>



The screenshot shows a web browser window with a dark header bar containing the text "CMS RPC CAF group - Manuals for New Shifter". Below the header is a navigation menu with links for "Home", "Introduction", "Shifter instructions", "Contact persons", "Useful links", and "Analysis results". The main content area displays a slide titled "Introduction to the Prompt Analysis Tool (PAT) for New Shifter". The text "Introduction to the Prompt Analysis Tool" is in black, "(PAT)" is in blue, and "for New Shifter" is in black. At the bottom of the slide, there are navigation buttons: "<<Back" and "Next>>". Below these buttons, the text "Start Quiz" is visible, followed by "This free script provided by JavaScript Kit".

Summary

- Report about Activity at CAF
 - Working as an Advanced CAF Shifter
- Result of Activity at CAF
 - Taking Part in CRAFT08 Analysis
 - Being included in CRAFT08 Analysis Paper
 - Including "Manual for New CAF Shifters" in RPC CAF Web



Doubly Charged Higgs Decay to $\mu^+\mu^+\mu^-\mu^-$ when one μ is missing

Sungkyunkwan University

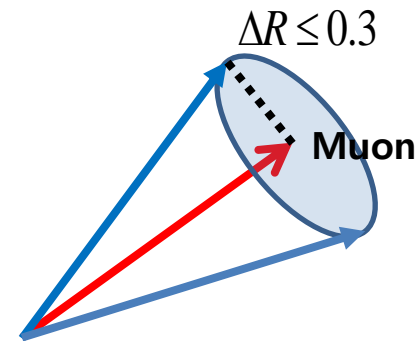
26. 09. 09 Sungeun Lee

Event Selection Plan

Refer to Physical Review Letters Volume 101, 15, August 2008 (at D0)

- Step 1 : $pt > 10\text{GeV}$ and $|\eta| < 2.4$
- Step 2 : when $\Delta R = 0.3$, $isolPt < 10\text{GeV}$
to reject background from muons originating from semileptonic B decays.
- Step 3 : $\Delta\Phi < 0.8\pi$ (2.5 radian)
It is applied to reject $Z \rightarrow \mu + \mu^-$ events.
This selection also removes the remaining background from cosmic muons.
- Step 4 : finding at least one pair of muons in the event to be of like-sign charge. These pairs are considered as candidates for $H^{\pm\pm} \rightarrow \mu^{\pm}\mu^{\pm}$ decays.
- Step 5 : finding a third muon, satisfying the S1 selection and the isolation selection criteria S2 but without the minimum hit requirement on the central track.

$$\Delta R = \sqrt{(\Delta\phi)^2 + (\Delta\eta)^2}$$



Thank you

Back up

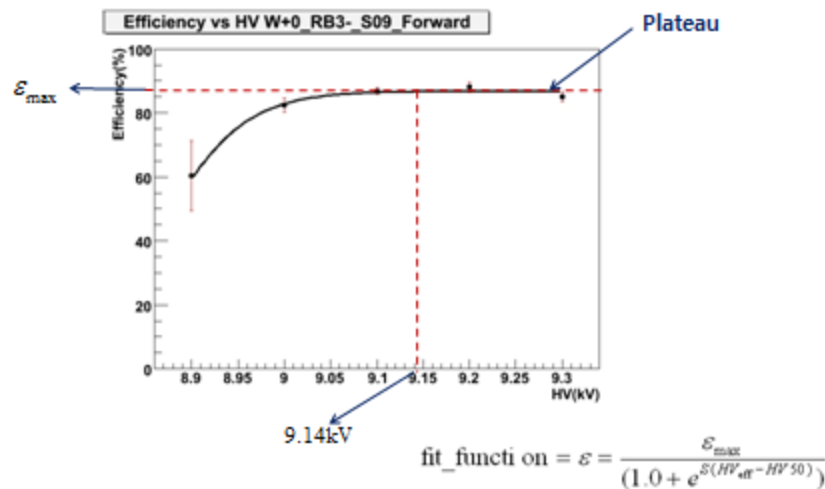
RUN 98167 Information

- Event Number : (collected ~19.0 M)
- Duration From 00:10 to 04:20 02/06/09
- Good steady run
- W-2 out (DT in, CSC out)
- HV @ 9.2kV
- Threshold @230mV
- Readout/Trigger
- Magnetic Field@0 (CRUZET)

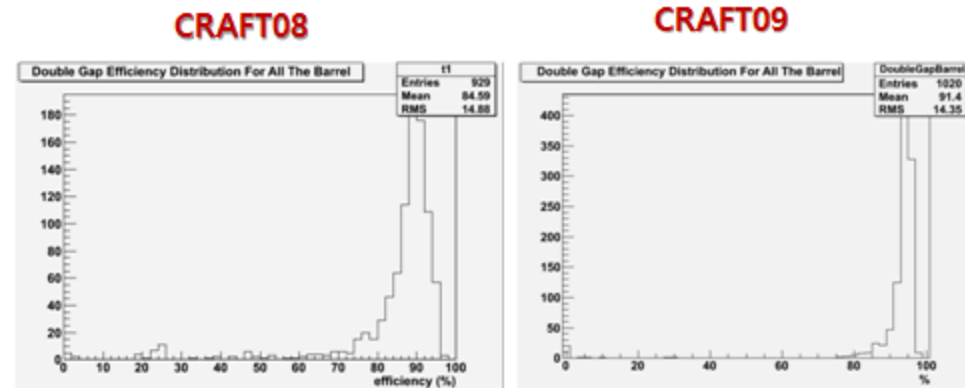
RUN 98310 Information

- Event Number : 1,744,314,624
- Duration : from 22:59 June 03 to 06:03 June 04
- HV @ 9.2kV
- Threshold @230mV
- Readout/Trigger
- Magnetic Field@0 (CRUZET)
- Good, only for the Noise Monitoring

HV Working Point Definition



Efficiency of Barrel at 9.2kV



A Letter from Davide

Dear Sungeun,

The discussion regarding the HV scan plots in the paper is related to several issues more of hardware type.

I don't have doubt on the part related to the efficiency measurement and to code related to the fit.

The sigmoid function is a reasonable model and the results of the fit seems to me correct.

I think that the main doubts are related to the following reasons :

- 1 - are 4 points enough to fit in a correct way the data ?
- 2 - every HV run has been taken in a different period so that T and P could have been changed and at moment for CRAFT08 we never corrected the effect of T and P on the working voltage. This could generates wrong fit because the HV used were not completely corrected.
- 3 - in each HV run a different masking procedure has been applied so that different runs have different number of strips masked. Does this affect the results ?

In CRAFT09 we have learnt that overcoming this problems we get better results but, at least up to yesterday, we also took runs with a reduced threshold so that may be the improvement is due to this.

I think that we can still think a little bit how to proceed and then we will discuss with referees to understand the best solution.

Regards
Davide

Manual for New CAF Shifters

Before Start CAF Shift

Introduction to the Prompt Analysis Tool (PAT) for New Shifter

- Need CAF Shifter **Certification**.
- To get the Certification, you should ask to CAF managers.
- Without the certification, your jobs can not be reserved under the castor directory of ccmuon.

Preparation...

1. Go to scratch0
2. Under scratch0, install CMSSW_3_1_0
3. Under CMSSW_3_1_0/src, install NewGUI

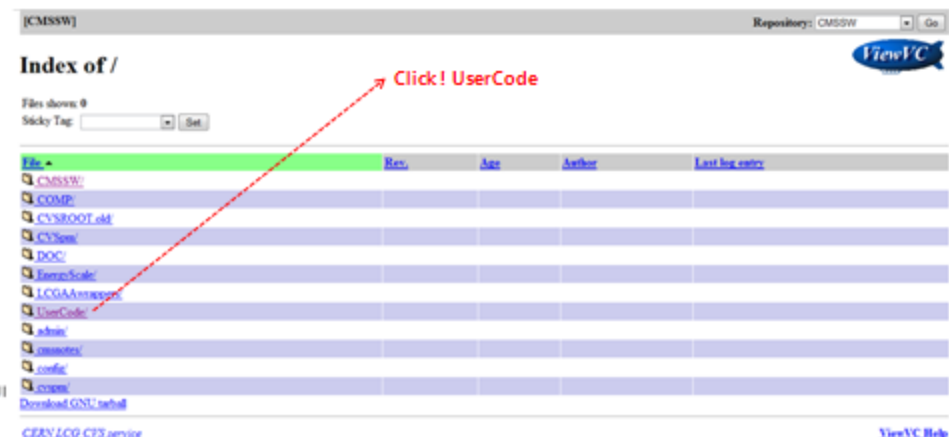
```
[xp1us225] ~/scratch0 >
[xp1us225] ~/scratch0 > cmsrel CMSSW_3_1_0
[xp1us225] ~/scratch0 > ls
CMSSW_3_1_0
[xp1us225] ~/scratch0 > cd CMSSW_3_1_0
[xp1us225] ~/scratch0/CMSSW_3_1_0 > ls
bin  config  doc  include  lib  logs  python  share  src  test  tmp
[xp1us225] ~/scratch0/CMSSW_3_1_0 > cd src
[xp1us225] ~/scratch0/CMSSW_3_1_0/src >
[xp1us225] ~/scratch0/CMSSW_3_1_0/src >
[xp1us225] ~/scratch0/CMSSW_3_1_0/src > cvs co -r 001-02-02_CMSSW_3_1_0 UserCode/trentad/NewGUI
```

The version of CMSSW is CMSSW_3_1_0

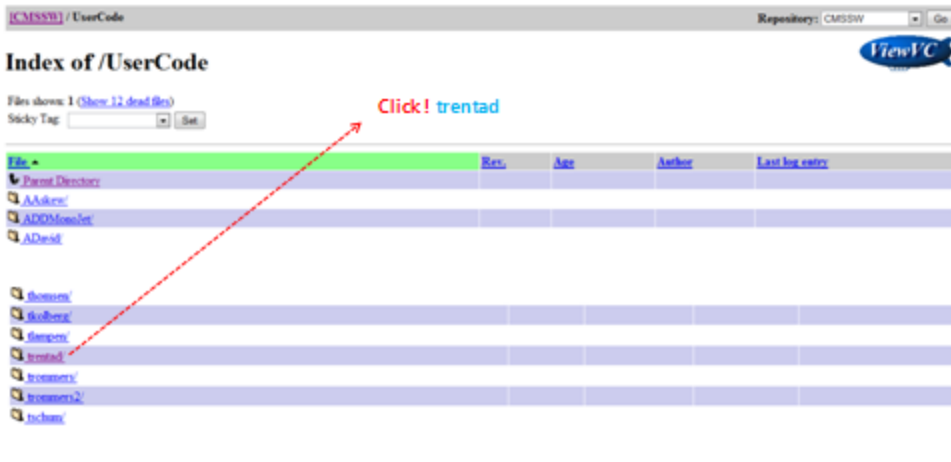
You should check the latest version.

To know the latest version, go to <http://cmssw.cvs.cern.ch>.

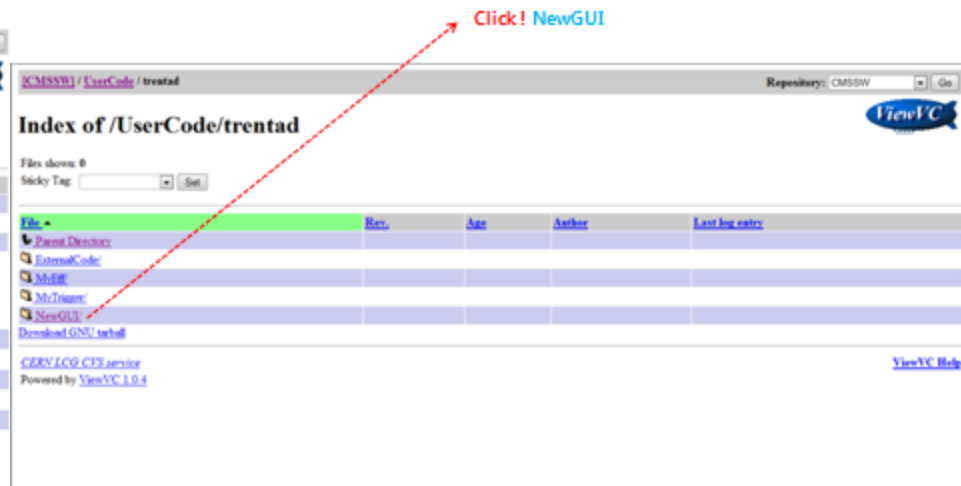
PAT in <http://cmssw.cvs.cern.ch>



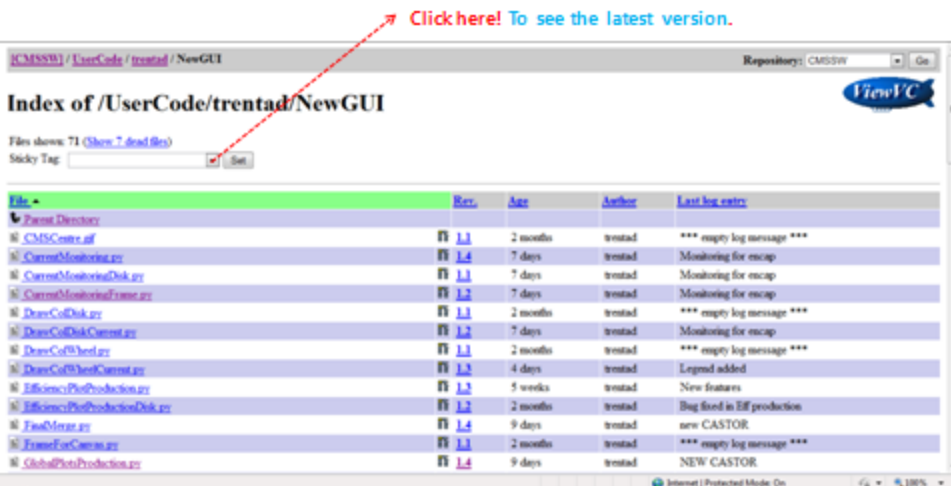
Path to PAT in UserCode



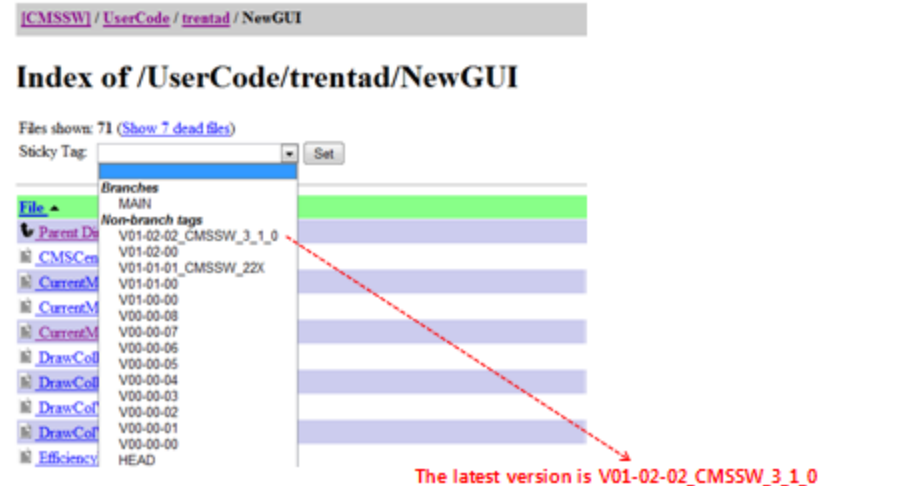
In trentad directory



In NewGUI directory



The latest version of NewGUI



How to execute PAT Code

```

~/scratch0/CMSW_3_1_0/src > ls
UserCode
~/scratch0/CMSW_3_1_0/src > cd UserCode
~/scratch0/CMSW_3_1_0/src/UserCode > ls
CVS
treated
~/scratch0/CMSW_3_1_0/src/UserCode > cd treated
~/scratch0/CMSW_3_1_0/src/UserCode/treated > ls
CVS
NewGUI
~/scratch0/CMSW_3_1_0/src/UserCode/treated > cd NewGUI
~/scratch0/CMSW_3_1_0/src/UserCode/treated/NewGUI > ls
jobtemplate1
jobtemplate2
jobtemplate3
jobtemplate4
OMBCentre.gif
omc_higgs_event.gif
CurrentMonitoringDisk.py
CurrentMonitoringFrame.py
CurrentMonitoring.py
CVS
disk_coord.txt
dm_fig1.py
DrawColDiskCurrent.py
DrawColDisk.py
DrawColWheelCurrent.py
DrawColWheel.py
EfficiencyPlotProduction.py
EfficiencyPlotProduction.py
f1recorder.py
FrameMerge.py
FrameForCanvas.py
GlobalPlotProduction.py
HVScanFrame.py
HVScan.py
jobnoise.job
jobtemplate0
jobtemplate1
jobtemplate2
jobtemplate3
jobtemplate4
keyBoardForDetectorNew.py
keyPlotDisk.py
libNoiseFrame.py
MergeJobs.py
MergeFrameForSeveralJobs.py
MergeFrameNew.py
MergeJobForAGivenRunNumberNew.py
MergeJobForAGivenRunNumber.py
MergeJobForSimulrConditions.py
MergeJobTemplate.job
MergeNoise.py
MergeNoiseTemplate.job
MergeSeveral.py
MergeTrack.py
MergeTrackTemplate.job
myDialogTableAnalysis.py
myDialogTableMerging.py
myDialogTableSearch.py
myDialogTableSubmission.py
noisejob.py
NoiseFrame.py
PlotDisplayForSelectedChamberCurrent.py
PlotDisplayForSelectedChamberDisk.py
PlotDisplayForSelectedChamber.py
PlotDisplayGlobal.py
QualityEnginePerformanceDisk.py
QualityEnginePerformance.py
scatter.py
RunJobForAGivenRunNumberNew.py
SearchJobs.py
SearchDataset.py
SearchDatasetFromRun.py
SearchFromRun.py
SearchRun.py
segment.py
slideShowNew.py
StatusForAGivenRunNumber.py
StatusFrame.py
StatusReportFrame.py
StatusReport.py
SubmissionFrameForMissingJobs.py
SubmissionFrame.py
TrackEffNew.py
TrackEff.py
Trig.py
wheel_coord.txt
~/scratch0/CMSW_3_1_0/src/UserCode/treated/NewGUI > ./MainPanelNew.py & ./MainPanelNew.py &
  
```



How to Use PAT

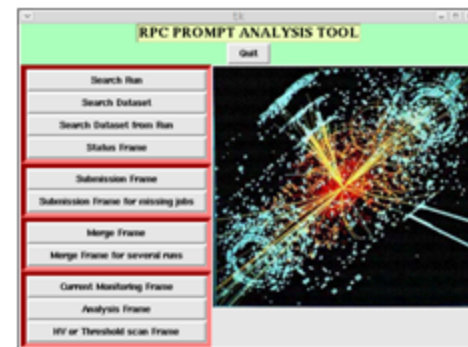
You can see the information concerning the run to be submitted



This part is for the submission of jobs for a given run.



After the running of the submitted jobs, merge the files with this Frame.



You can see the analysis plot in this frame.



Search Run Information

Write Run Number. Click **Search**

```

Found 22 processed datasets

/TestEnables/HAPPYHAPPYWARMFUZZY_T0TEST_WITHBUNNIESDANCINGAROUND-PFTHPHTHPHTHPHTH-dev-v3CRA
/TestEnables/Commissioning09-v1/RAW
/TestU/Commissioning09-v1/RAW
/RandomTriggers/HAPPYHAPPYWARMFUZZY_T0TEST_WITHBUNNIESDANCINGAROUND-PFTHPHTHPHTHPHTH-dev-v3
/RandomTriggers/Commissioning09-v1/RAW
/Monitor/HAPPYHAPPYWARMFUZZY_T0TEST_WITHBUNNIESDANCINGAROUND-PFTHPHTHPHTHPHTH-dev-v3CRAFT/R
/Monitor/Commissioning09-v1/RAW
/MinimumBias/HAPPYHAPPYWARMFUZZY_T0TEST_WITHBUNNIESDANCINGAROUND-PromptReco-PFTHPHTHPHTHPHTH
/MinimumBias/HAPPYHAPPYWARMFUZZY_T0TEST_WITHBUNNIESDANCINGAROUND-PFTHPHTHPHTHPHTH-dev-v3CR
/MinimumBias/Commissioning09-v1/RAW
/MinimumBias/Commissioning09-PromptReco-v1.RECO
/RcAlHPDNoise/HAPPYHAPPYWARMFUZZY_T0TEST_WITHBUNNIESDANCINGAROUND-PFTHPHTHPHTHPHTH-dev-v3CR
/RcAlHPDNoise/Commissioning09-v1/RAW
/Cosmics/HAPPYHAPPYWARMFUZZY_T0TEST_WITHBUNNIESDANCINGAROUND-PromptReco-PFTHPHTHPHTHPHTH-de
/Cosmics/HAPPYHAPPYWARMFUZZY_T0TEST_WITHBUNNIESDANCINGAROUND-PFTHPHTHPHTHPHTH-dev-v3CRAFT/R
/Cosmics/Commissioning09-v1/RAW
/Cosmics/Commissioning09-PromptReco-v1.RECO
  
```

Submission Frame

If click **Submission Frame** button, **Submit jobs for RUN number** is not showed up.

- Write the current CMSW Release version. Now, it is **CMSSW_3_1_0**
- Write dataset name. If you don't know, ask to an Expert
- Write run number.
- If you want to run all jobs, write **-1**.
- These buttons mean the kinds of root files which are created when jobs are submitted. Before submitting jobs, these buttons should be chosen.
- click!

The Result of Job Submission



If you click the **Submit** button, then in the castor of ccmuon, a directory which name is same as the dataset is created.

For example, when for run 98129 the dataset name is **/Cosmics/CRUZET09-PromptReco-v1/RECO**

Then, under `/castor/cern.ch/cms/store/caf/user/ccmuon/RPC/GlobalRuns`

`/CosmicsCRUZET09-PromptReco-v1RECO` and run number `/98129` directory are created.

After Submission of RunNumber

```

[tk@98129] -> rfsll /castor/cern.ch/cms/store/caf/user/ccmuon/RPC/GlobalRuns/CosmicsCommissioning09-PromptReco-v4RECO/
drwxrwxrwx 4 seungen zh 0 Jun 03 11:43 102258

[tk@102258] -> rfsll /castor/cern.ch/cms/store/caf/user/ccmuon/RPC/GlobalRuns/CosmicsCommissioning09-PromptReco-v4RECO/102258/
drwxrwxrwx 71 seungen zh 0 Jun 03 12:30 gif
drwxrwxrwx 28 seungen zh 0 Jun 03 11:56 noise
drwxrwxrwx 50 seungen zh 0 Jun 03 01:36 out
drwxrwxrwx 41 seungen zh 0 Jun 03 12:27 root

[tk@102258] -> rfsll /castor/cern.ch/cms/store/caf/user/ccmuon/RPC/GlobalRuns/CosmicsCommissioning09-PromptReco-v4RECO/102258/root
-rwxrwxrwx 1 seungen zh 12716751 Jun 03 00:22 DQM_0.root
-rwxrwxrwx 1 seungen zh 11522938 Jun 03 00:30 DQM_1.root
-rwxrwxrwx 1 seungen zh 11589667 Jun 03 00:30 DQM_2.root
-rwxrwxrwx 1 seungen zh 11595926 Jun 03 00:30 DQM_3.root
DQM

-rwxrwxrwx 1 seungen zh 17253893 Jun 03 00:19 EffC_0.root
-rwxrwxrwx 1 seungen zh 17283893 Jun 03 00:22 EffPC_1.root
-rwxrwxrwx 1 seungen zh 17283893 Jun 03 00:22 EffPC_2.root
-rwxrwxrwx 1 seungen zh 17283893 Jun 03 00:22 EffPC_3.root
Efficiency of StandAlone

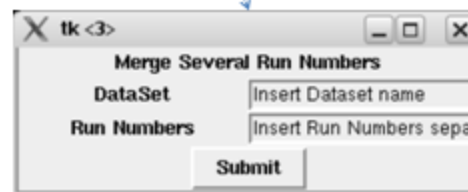
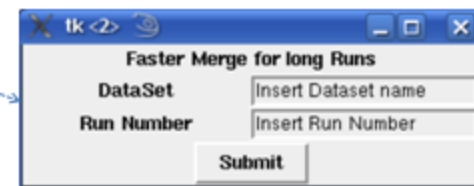
-rwxrwxrwx 1 seungen zh 13170836 Jun 03 01:09 SFPC_0.root
-rwxrwxrwx 1 seungen zh 13130567 Jun 03 01:34 SFPC_1.root
-rwxrwxrwx 1 seungen zh 13131803 Jun 03 01:36 SFPC_2.root
-rwxrwxrwx 1 seungen zh 13132709 Jun 03 01:34 SFPC_3.root
Efficiency of DT Segment
    
```

When there are missing jobs



By this frame, the missing jobs can be submitted automatically. In this work, you also can choose the kinds of jobs.

Merge Frame



After Merging the Root files

```

[1plus218] ~ > find /castor/cern.ch/cms/store/csi/user/comuch/RPC/GlobalRuns/CosmicsCRUZET09-Prompt-v1RECO/98129/root/
-f wf.f.root 1 Seungen zh 12716751 Jun 03 00:22 DQM_0.root
-f wf.f.root 1 Seungen zh 11522938 Jun 03 00:30 DQM_1.root
-f wf.f.root 1 Seungen zh 11549667 Jun 03 00:30 DQM_2.root
-f wf.f.root 1 Seungen zh 11595926 Jun 03 00:30 DQM_3.root
    
```

```

-f wf.f.root 1 Seungen zh 1348244 Jun 03 11:48 DQM_98129_0.root
-f wf.f.root 1 Seungen zh 13335610 Jun 03 11:49 DQM_98129_1.root
-f wf.f.root 1 Seungen zh 12130023 Jun 03 11:48 DQM_98129_2.root
-f wf.f.root 1 Seungen zh 17283893 Jun 03 00:19 SRPC_0.root
-f wf.f.root 1 Seungen zh 17283893 Jun 03 00:22 SRPC_1.root
-f wf.f.root 1 Seungen zh 17283893 Jun 03 00:22 SRPC_2.root
-f wf.f.root 1 Seungen zh 17283893 Jun 03 00:22 SRPC_3.root
-f wf.f.root 1 Seungen zh 17283957 Jun 03 11:50 SRPC_98129_0.root
-f wf.f.root 1 Seungen zh 17283957 Jun 03 11:50 SRPC_98129_1.root
-f wf.f.root 1 Seungen zh 17283957 Jun 03 11:49 SRPC_98129_2.root
-f wf.f.root 1 Seungen zh 44609138 Jun 03 11:56 Merge_DQM_SRPC_SRPC.root
-f wf.f.root 1 Seungen zh 46026302 Jun 03 12:27 Merge_tot_new.root
-f wf.f.root 1 Seungen zh 13170636 Jun 03 01:09 SRPC_0.root
-f wf.f.root 1 Seungen zh 13130567 Jun 03 01:34 SRPC_1.root
-f wf.f.root 1 Seungen zh 13131803 Jun 03 01:36 SRPC_2.root
-f wf.f.root 1 Seungen zh 13132709 Jun 03 01:34 SRPC_3.root
-f wf.f.root 1 Seungen zh 13182740 Jun 03 11:51 SRPC_98129_0.root
-f wf.f.root 1 Seungen zh 13188874 Jun 03 11:51 SRPC_98129_1.root
-f wf.f.root 1 Seungen zh 13152243 Jun 03 11:49 SRPC_98129_2.root
    
```

By merging, these files are created. The most important file is `Merge_tot_new.root` to Data Quality Monitoring(DQM).

Save Status report

You can define the criterion values of Bx, ClusterSize, Efficiency minimum, maximum, and Masked strip minimum, maximum.

If you want to know the status of each chamber with values of Bx, ClusterSize, Efficiency and Masked strip numbers, Click!

After the click **Submit**, you can see like this....

```

[1plus218] ~/scratch0/CMSW_2_2_9/src/UserCode/trentad/NewGUI > [~/Cosmics/Commissioning09-PromptReco-v1/RECO', '79044', -3.0
, 3.0, 1.0, 10.0, 0.0, 100.0, 0.0, 90.0]
rfio:/castor/cern.ch/cms/store/csi/user/comuch/RPC/GlobalRuns/CosmicsCommissioning09-PromptReco-v1RECO/79044/root/Merge_tot_new.root
79044 314968.0
LocalEfficiencyFromSegments_W-2_RBlin_S04_Forward [0.0]
LocalEfficiencyFromSegments_W-2_RBlin_S04_Backward [0.0, 0.0]
LocalEfficiencyFromSegments_W-2_RBlin_S04_Forward [0.0]
LocalEfficiencyFromSegments_W-2_RBlin_S04_Backward [0.0, 0.0]
LocalEfficiencyFromSegments_W-1_RBlin_S04_Forward [89.6265864054362]
LocalEfficiencyFromSegments_W-1_RBlin_S04_Backward [89.6265864054362, 82.70408439632305]
LocalEfficiencyFromSegments_W-2_RB4_-S10_Backward [21.912698364257814, 21.257936414082845]
Done!
    
```

When the submission is over, **Done!** is showed up in the last line. And under `NewGUI` directory `StatusReport.txt` is created.

Analysis Frame



After the submission and merging...



1. Write the Dataset.
2. Write **Run Number**.
3. Check **RFIO**.
4. Click **Load Root File**.

If you click **Save Status report**, `StatusReport.txt` is created under `NewGUI` directory.

If you click **Global Plots**, Global plots panel is showed up.

If you click each part, you can know the status of chamber with color. And also watch plots of each parameters, for example, Bx, ClusterSize, Efficiencies...

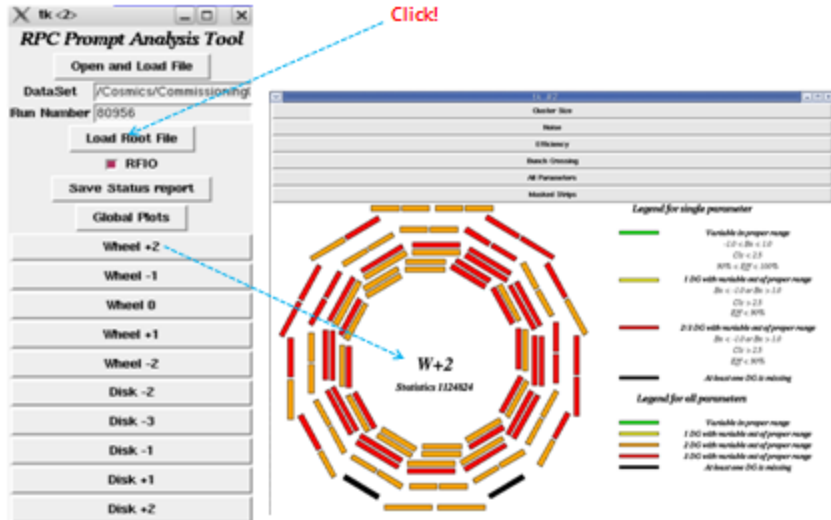
StatusReport.txt

```

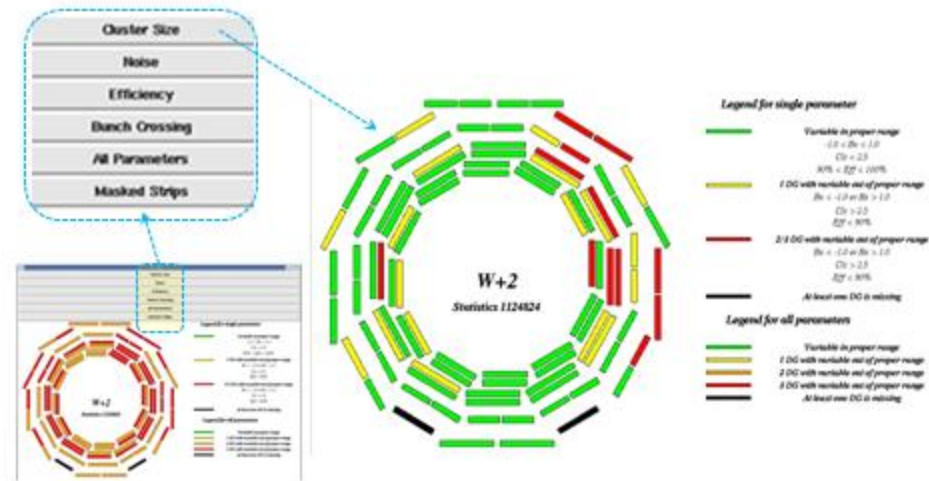
[1plus218] ~/scratch0/CMSW_2_2_9/src/UserCode/trentad/NewGUI > more StatusReport.txt
Dataset: /Cosmics/Commissioning09-PromptReco-v1/RECO
Run number: 83079
Number of events: 64813.0
Wheel: W+1 Ch: RBlin_S04 Bx Forw: 0.10 Cls Forw :2.34 Eff Forw: 82.97 Mask Forw: 0.00
Wheel: W+1 Ch: RBlin_S04 Bx Back: -0.01 Cls Back :1.99 Eff Back: 77.67 Mask Back: 1.00
Wheel: W+2 Ch: RBlin_S04 Bx Forw: 0.06 Cls Forw :1.87 Eff Forw: 93.13 Mask Forw: 0.00
Wheel: W+2 Ch: RBlin_S04 Bx Back: 0.12 Cls Back :2.19 Eff Back: 94.83 Mask Back: 0.00
Wheel: W+1 Ch: RBlin_S05 Bx Forw: 0.34 Cls Forw :1.86 Eff Forw: 82.71 Mask Forw: 4.00
Wheel: W+1 Ch: RBlin_S05 Bx Back: 0.27 Cls Back :1.90 Eff Back: 85.67 Mask Back: 0.00
Wheel: W+2 Ch: RBlin_S05 Bx Forw: 0.14 Cls Forw :2.11 Eff Forw: 91.69 Mask Forw: 0.00
Wheel: W+2 Ch: RBlin_S05 Bx Back: 0.12 Cls Back :2.09 Eff Back: 88.70 Mask Back: 0.00
Wheel: W+1 Ch: RBlin_S06 Bx Forw: 0.20 Cls Forw :2.30 Eff Forw: 71.85 Mask Forw: 0.00
Wheel: W+1 Ch: RBlin_S06 Bx Back: 0.40 Cls Back :2.60 Eff Back: 70.98 Mask Back: 1.00
Wheel: W+2 Ch: RBlin_S06 Bx Forw: 0.32 Cls Forw :1.91 Eff Forw: 71.63 Mask Forw: 1.00
Wheel: W+2 Ch: RBlin_S06 Bx Back: -0.18 Cls Back :1.81 Eff Back: 64.77 Mask Back: 1.00
Wheel: W+1 Ch: RBlin_S07 Bx Forw: 0.64 Cls Forw :2.71 Eff Forw: 63.24 Mask Forw: 0.00
Wheel: W+1 Ch: RBlin_S07 Bx Back: 0.37 Cls Back :2.76 Eff Back: 69.72 Mask Back: 0.00
Wheel: W+2 Ch: RBlin_S07 Bx Forw: 0.99 Cls Forw :2.87 Eff Forw: 66.48 Mask Forw: 0.00
Wheel: W+2 Ch: RBlin_S07 Bx Back: 0.37 Cls Back :2.91 Eff Back: 68.15 Mask Back: 0.00
Wheel: W+1 Ch: RBlin_S08 Bx Forw: 0.19 Cls Forw :2.32 Eff Forw: 83.33 Mask Forw: 1.00
Wheel: W+1 Ch: RBlin_S08 Bx Back: 0.28 Cls Back :1.83 Eff Back: 76.44 Mask Back: 0.00
Wheel: W+2 Ch: RBlin_S08 Bx Forw: 0.15 Cls Forw :2.30 Eff Forw: 84.00 Mask Forw: 0.00
Wheel: W+2 Ch: RBlin_S08 Bx Back: 0.31 Cls Back :2.50 Eff Back: 77.13 Mask Back: 0.00
Wheel: W+1 Ch: RBlin_S09 Bx Forw: 0.37 Cls Forw :2.10 Eff Forw: 88.18 Mask Forw: 1.00
    
```

Wheel Chamber name Bx ClusterSize Efficiency Masked Strips

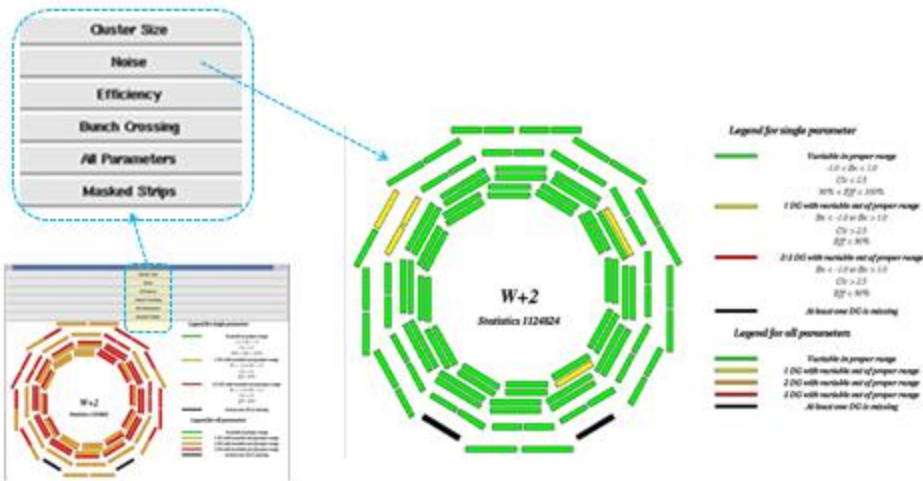
After Load Root File



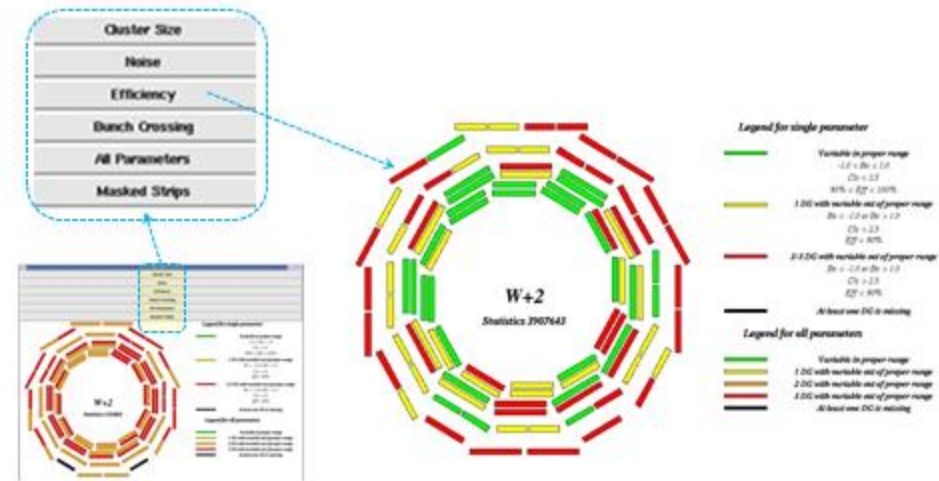
Cluster Size



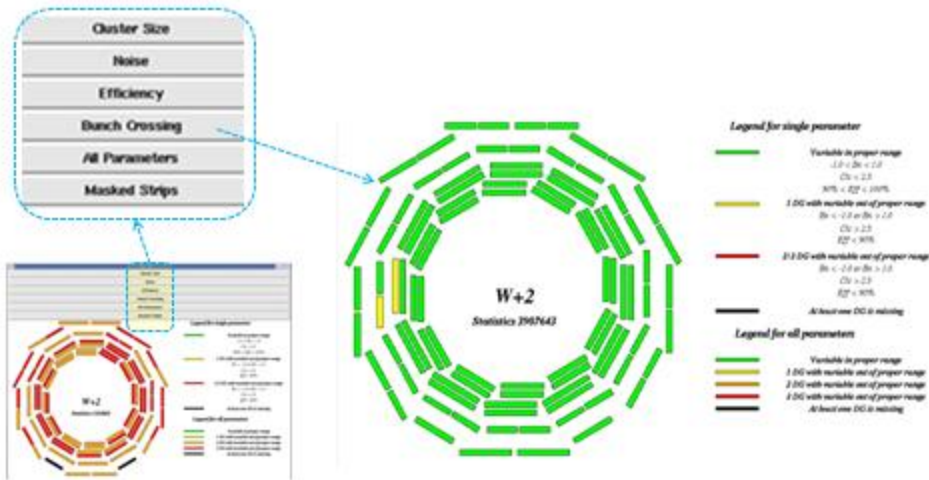
Noise



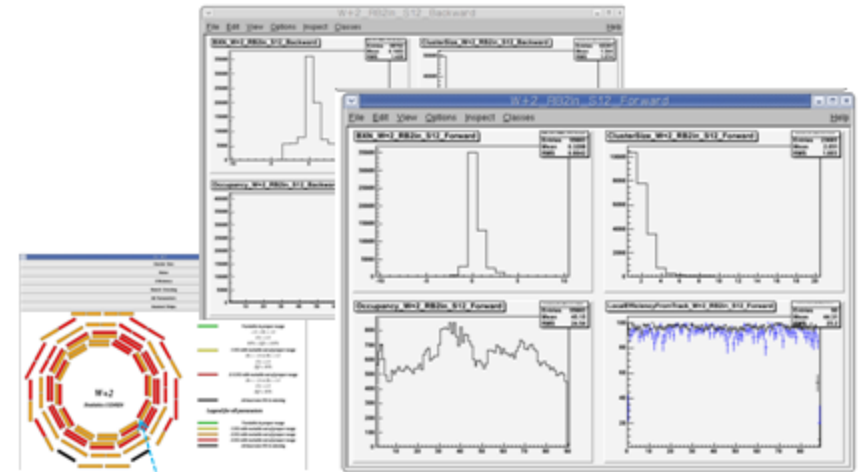
Efficiency



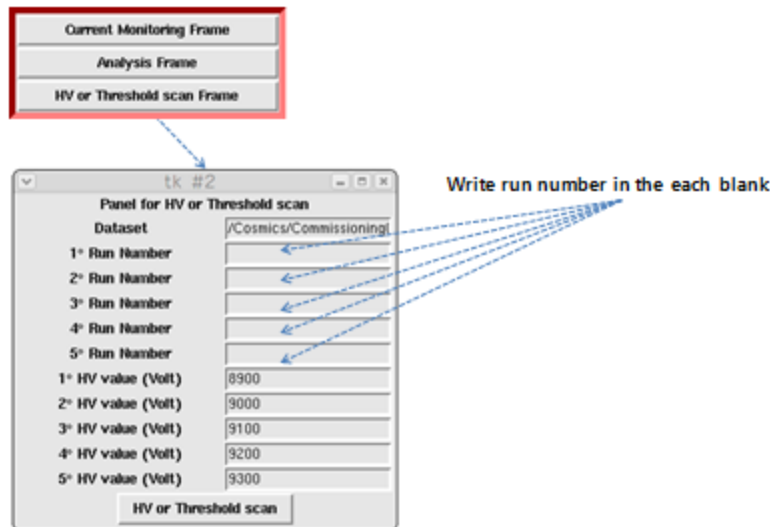
Bunch Crossing



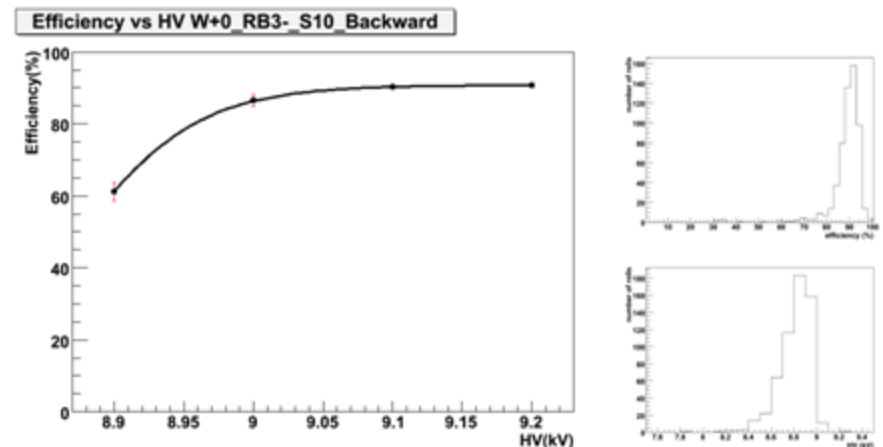
DQM of Wheel by Wheel



HV and Threshold scan Frame



HV Scan Plot

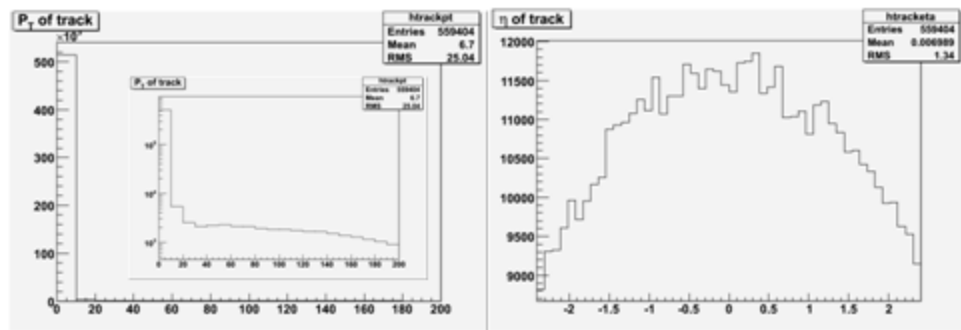


Muon Isolation

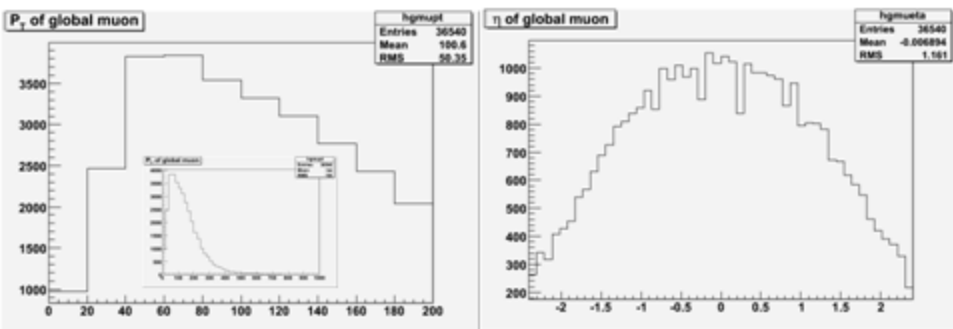
Decay Sample

- Decay Mode : $2H_{\pm\pm} \rightarrow \mu^+\mu^+\mu^-\mu^-$
- Generated Event Number : 10000
@200GeV under CMSSW_2_2_6
- Analysis Reason : To know how to isolate Signal Muon from Higgs

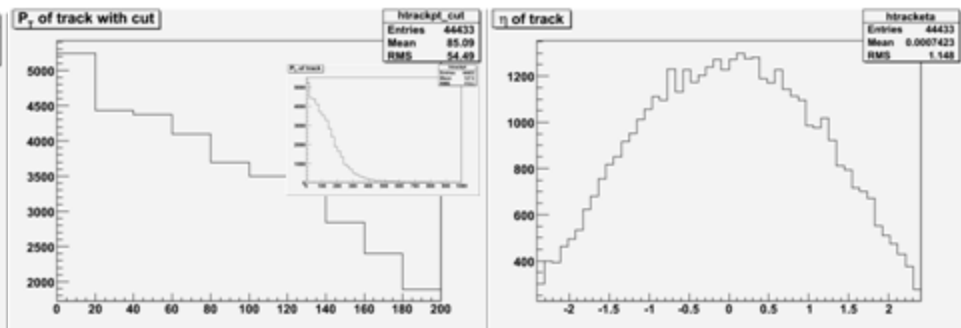
Pt & Eta of Track



Pt & Eta of Global Muon

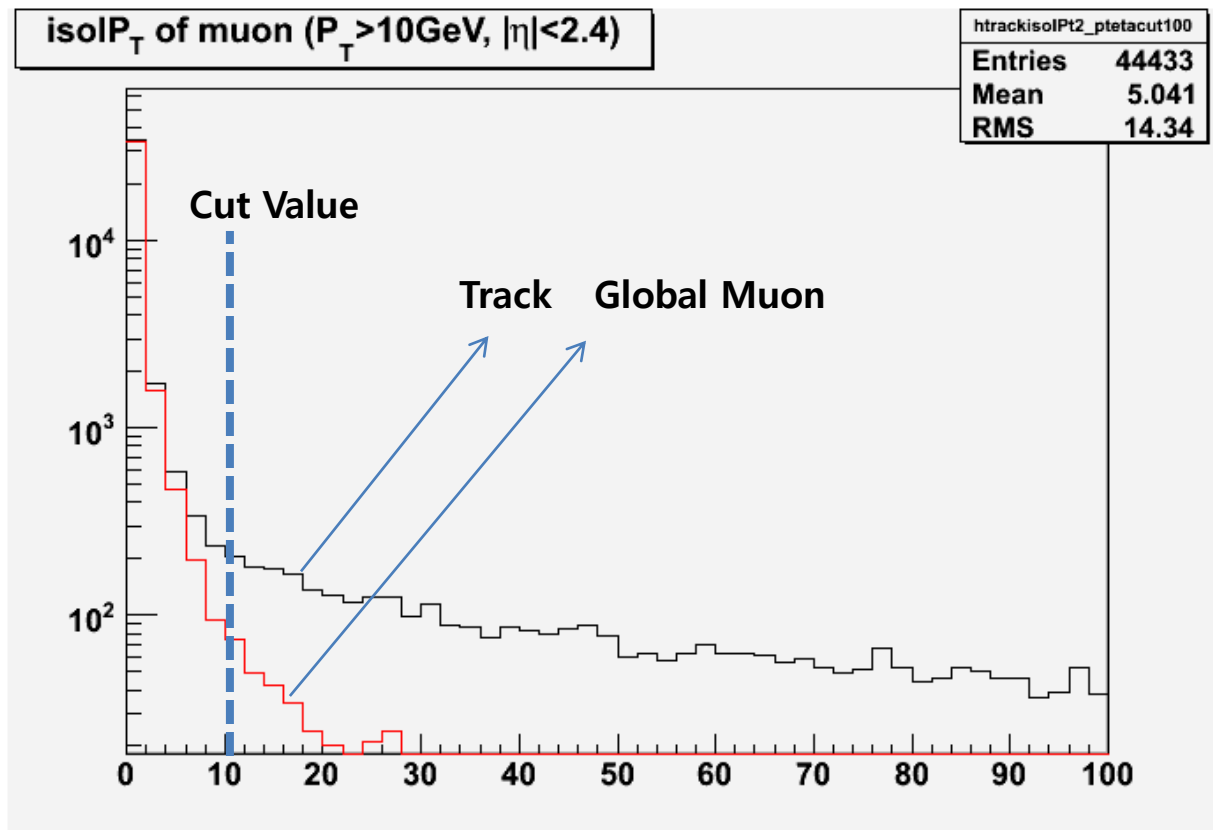


Track with pt > 10 & |Eta| < 2.4



isolPt

$isolPt = \sum P_T^i$, where the sum runs over charged particle inside a cone of radius $\Delta R = \sqrt{(\Delta\phi)^2 + (\Delta\eta)^2} = 0.3$
except matched particle with muon
(particle = track or MCcharged particle, muon = global muon or MCmuon from Higgs)



Pt when isoPt is smaller than 10

