First Look at Period 14 High PT Lepton Efficiencies and SF: ID and Reco

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Tufts

Electrons ID: Samples

Dataset bhelmj: Runs 252836-254686
MC sample : zewkej (Dec 2007)
GRL :Preliminary GRL for P14

P14 SAM dataset
MC dataset zemtej (P13) on SAM

Electron ID: Cuts

CEM Selection Cuts

Variable	Tight (CEM)
Region	== CEM
Fiducial	Fiducial == 1
E_T	$\geq$ 20 GeV
Track Z_0	$\leq$ 60 cm
Track p_T	$\geq$ 10 GeV/c
COT Ax. Seg.	≥ 3
COT St. Seg.	≥ 2
Conversion	$\neq 1$
Had/em	$\leq (0.055 + (0.00045 \times E))$
Isolation	≤ 0.1
LshrTrk	≤ 0.2
E/P	≤ 2.0 unless $p_T \geq$ 50GeV/c
CES ΔZ	$\leq$ 3.0 cm
Signed CES ΔX	$-3.0 \leq q \times \Delta X \leq 1.5$
CES StripChi2	≤ 10.0

Plug Selection Cuts

Variable	PHX	PEM
E_T	$\geq$ 20GeV	$\geq$ 20GeV
Pes2dEta	$1.2 \leq \lvert\eta\rvert \leq 2.8$	$1.2 \leq \lvert\eta\rvert \leq 2.8$
Had/Em	≤ 0.05	≤ 0.05
Pem3x3FitTow	$\neq 0$	$\neq 0$
Pem3x3Chisq	≤ 10	≤ 10
Pes5by9U	≥ 0.65	≥ 0.65
Pes5by9V	≥ 0.65	≥ 0.65
Isolation	≤ 0.1	≤ 0.1
ΔR	$\leq$ 3.0 cm	$\leq$ 3.0 cm
PhxMatch	TRUE	-
N_{hits}^{Si}	≥ 3	-
$\lvert z_0^{PHX}\rvert$	$\leq$ 60 cm	-

Period 14 vs P13

	Period 13		Period 14	
	Bhelmi(P13)	zemtjm	Bhelmi(P14)	zemtjm
CEM Eff	0.784+\-0.004	0.804 +\-0.001	0.796+\-0.009	0.804 +\-0.001
CEM SF	0.975 +\-0.005	N/A	0.991 +\-0.011	N/A
nisoCEM Eff	0.810 +\-0.003	0.829 +\-0.001	0.825 +\-0.008	0.829 +\-0.001
nisoCEM SF	0.984 +\-0.004	N/A	0.995 +\-0.010	N/A
LooseCEM Eff	0.913 +/- 0.003	0.915 +\-0.001	0.919 +/- 0.006	0.915 +\-0.001
LooseCEM SF	0.998 +\-0.003	N/A	1.004 +\-0.007	N/A
nisolooseCEM Eff	0.949+\-0.002	0.945 +\-0.001	0.950+\-0.005	0.945 +\-0.001
nisoloostCEM SF	1.002 +\-0.002	N/A	1.005 +\-0.005	N/A

	PHX		PHX	
Eff |Eta| < 2.0	0.681+\-0.006	0.736+\-0.001	0.678+\-0.14	0.736+\-0.001
SF |Eta| < 2.0	0.924+\- 0.008	NA	0.921+\-0.19	NA
	PHX		PHX	
Eff |Eta| < 2.8	0.601+\-0.005	0.644+\-0.001	0.599+\-0.012	0.644+\-0.001
SF |Eta| < 2.8	0.933+\- 0.008	NA	0.930+\-0.019	NA

Results for Period 13 (vs P12)

	Period 12		Period 13	
	Bhelmi(P12)	zewkeh	Bhelmi(P13)	zemtjm
CEM Eff	0.7717+\-0.0052	0.8027 +\-0.0011	0.784+\-0.004	0.804 +\-0.001
CEM SF	0.9613 +\-0.007	N/A	0.975 +\-0.005	N/A
nisoCEM Eff	0.8051 +\-0.0049	0.8286 +\-0.0011	0.810 +\-0.003	0.829 +\-0.001
nisoCEM SF	0.9716 +\-0.006	N/A	0.984 +\-0.004	N/A
LooseCEM Eff	0.9018 +/- 0.0037	0.9136 +\-0.0011	0.913 +/- 0.003	0.915 +\-0.001
LooseCEM SF	0.9869 +\-0.004	N/A	0.998 +\-0.003	N/A
nisolooseCEM Eff	0.9401+\-0.0029	0.9452 +\-0.0011	0.949+\-0.002	0.945 +\-0.001
nisoloostCEM SF	0.9945 +\-0.0033	N/A	1.002 +\-0.002	N/A

	PHX		PHX	
Eff |Eta| < 2.0	0.7016+\-0.008	0.7460+\-0.0015	0.681+\-0.006	0.736+\-0.001
SF |Eta| < 2.0	0.9280+\- 0.0100	NA	0.924+\- 0.008	NA
	PHX		PHX	
Eff |Eta| < 2.8	0.6155+\-0.0066	0.6589+\-0.0015	0.601+\-0.005	0.644+\-0.001
SF |Eta| < 2.8	0.9340+\- 0.0102	NA	0.933+\- 0.008	NA

P13 CEM-PEM

	P12 PEM		P13 PEM	
Eff |Eta| < 2.0	0.8001 +\- 0.0065	0.8609 +\- 0.0012	0.800+\-0.005	0.861+\-0.001
SF |Eta| < 2.0	0.9294+\- 0.0077	NA	0.929+\- 0.006	NA

	P12 PEM		P13 PEM	
Eff |Eta| < 2.8	0.7632 +\- 0.0058	0.8297 +\- 0.011	0.765+\-0.005	0.831+\-0.001
SF |Eta| < 2.8	0.9198 +\- 0.007	NA	0.921+\- 0.005	NA

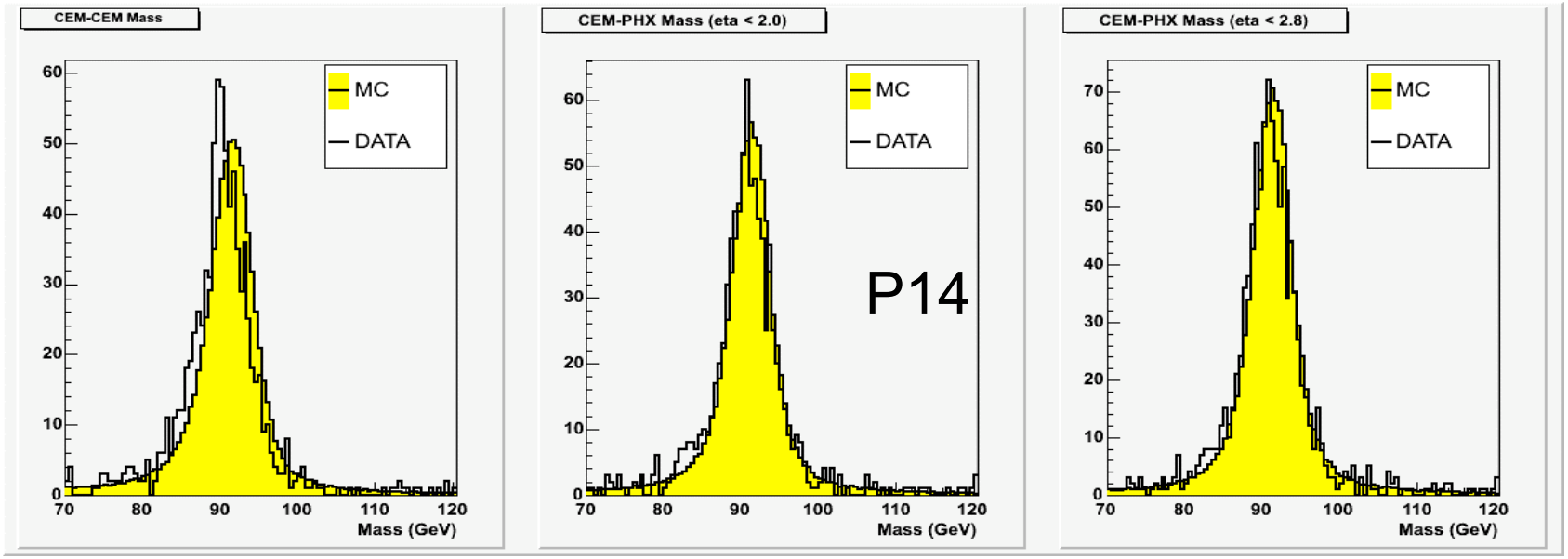
So the drop only concerns Si PHX

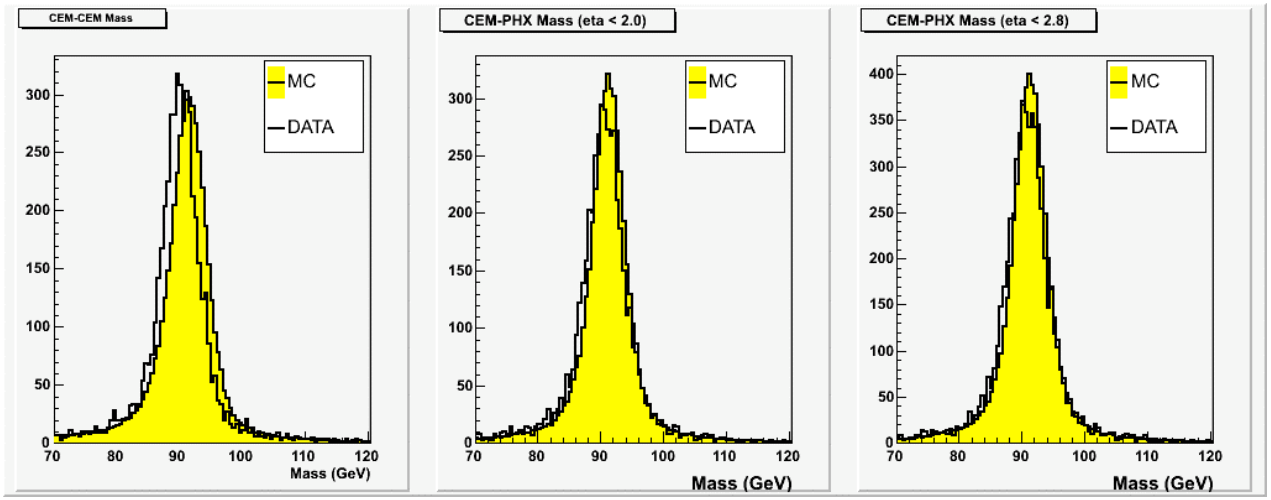
P14

PEM	
0.821+\-0.011	0.861+\-0.001
0.954+\-0.013	NA

PEM	
0.792+\-0.010	0.831+\-0.001
0.954+\-0.012	NA

EleID Plots





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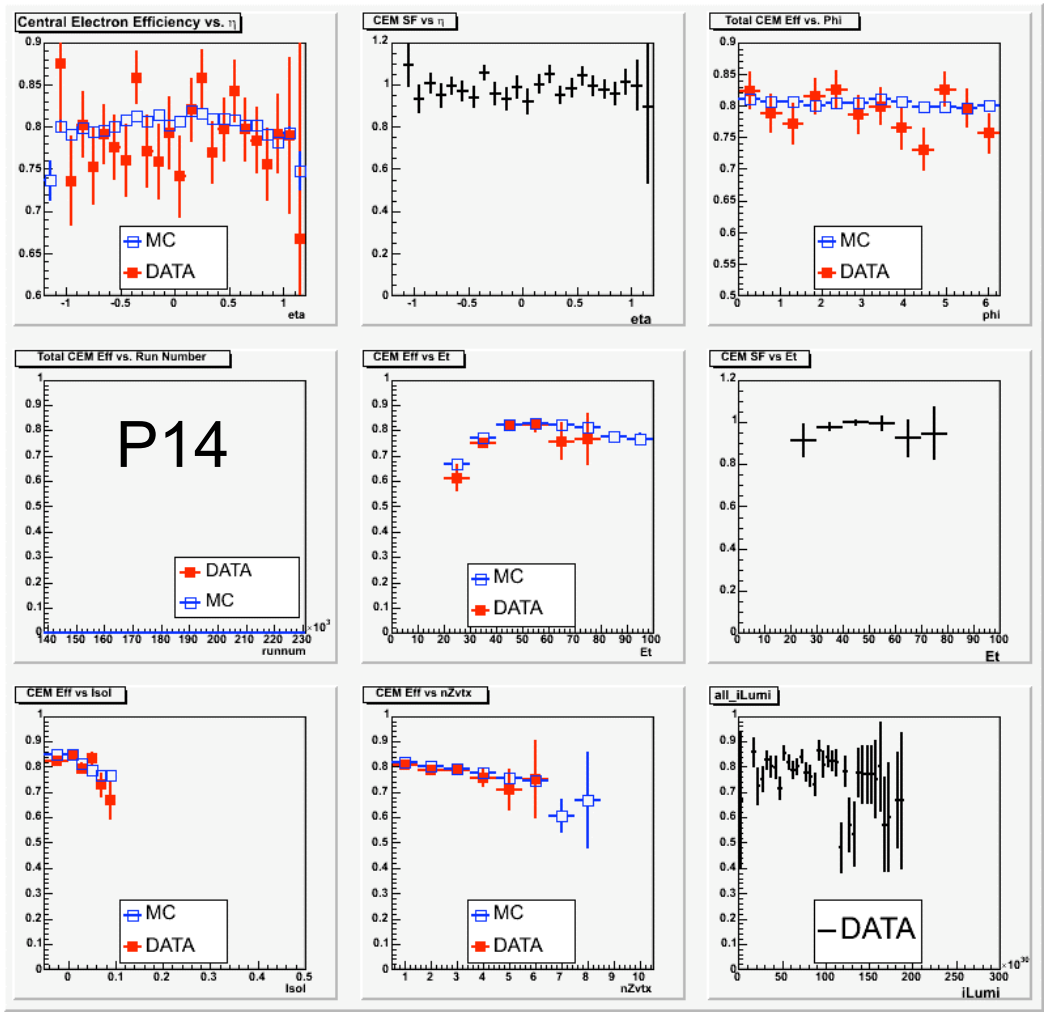
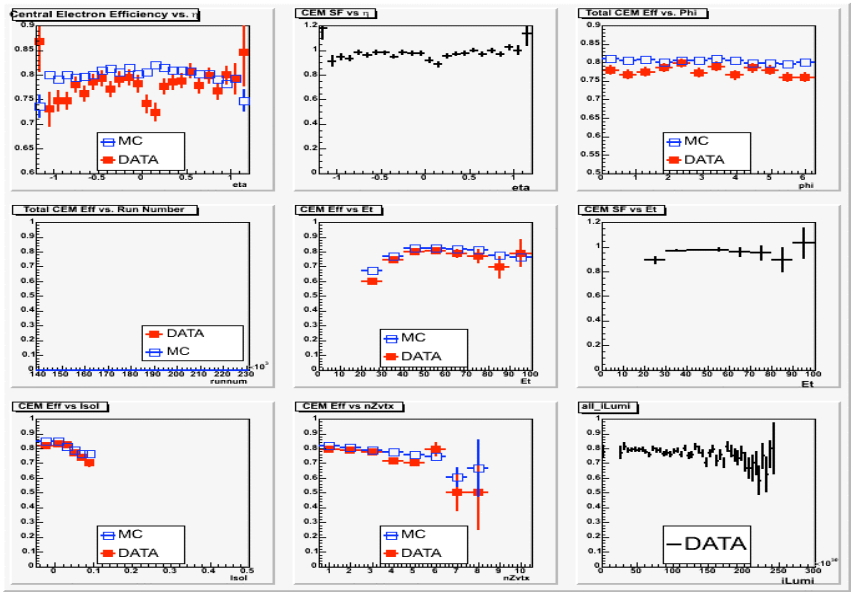
EleID Plots 1

CEM Efficiencies

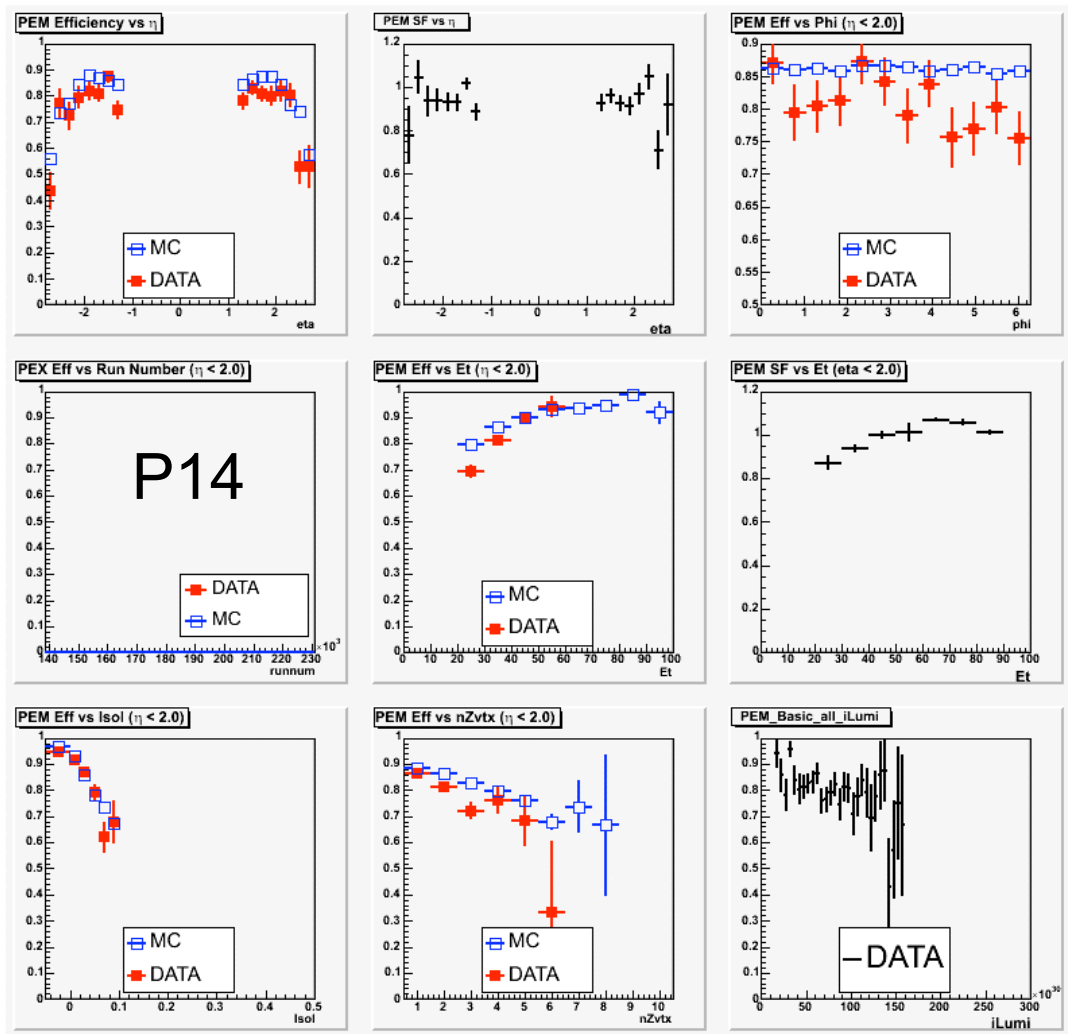


P13

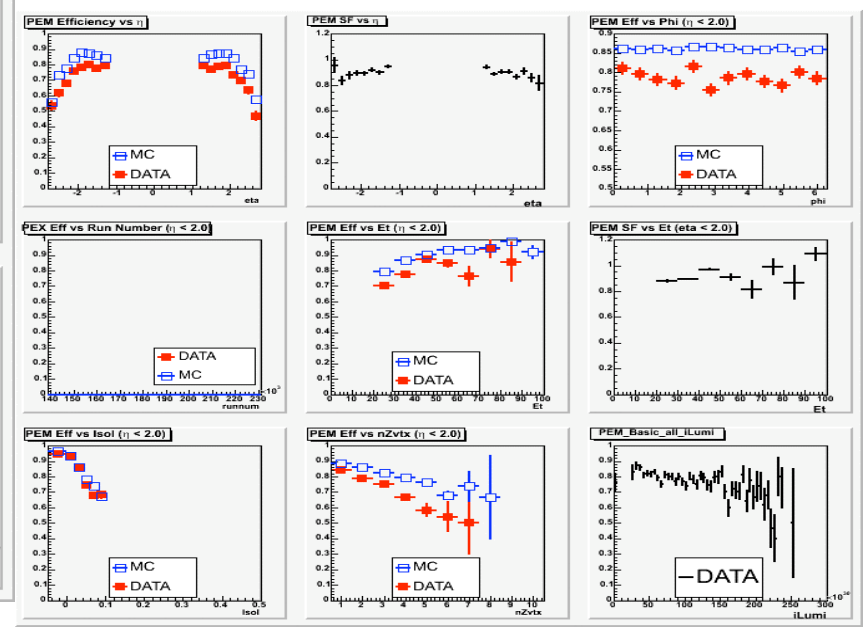


EleID Plots 2

PEM Efficiencies

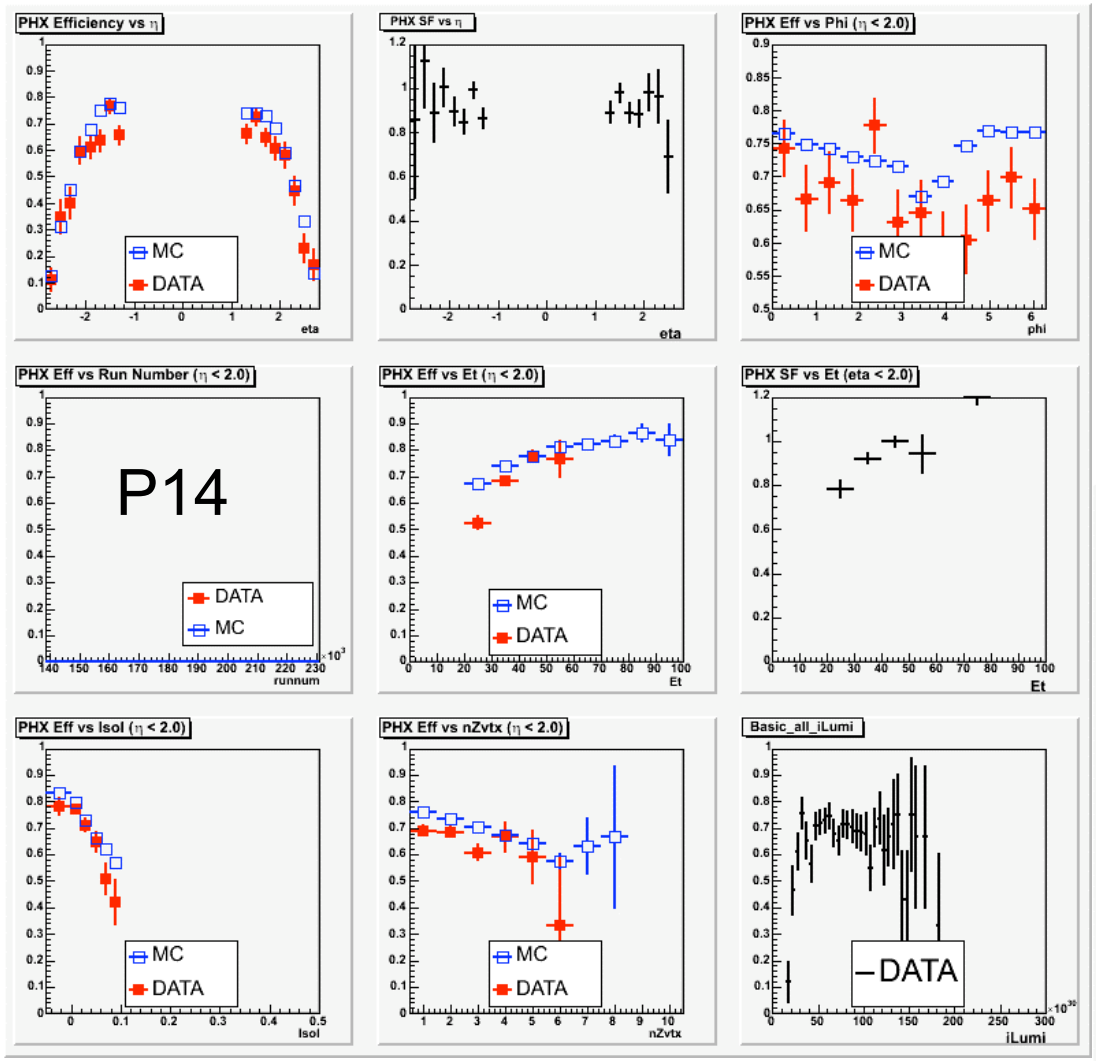


P13

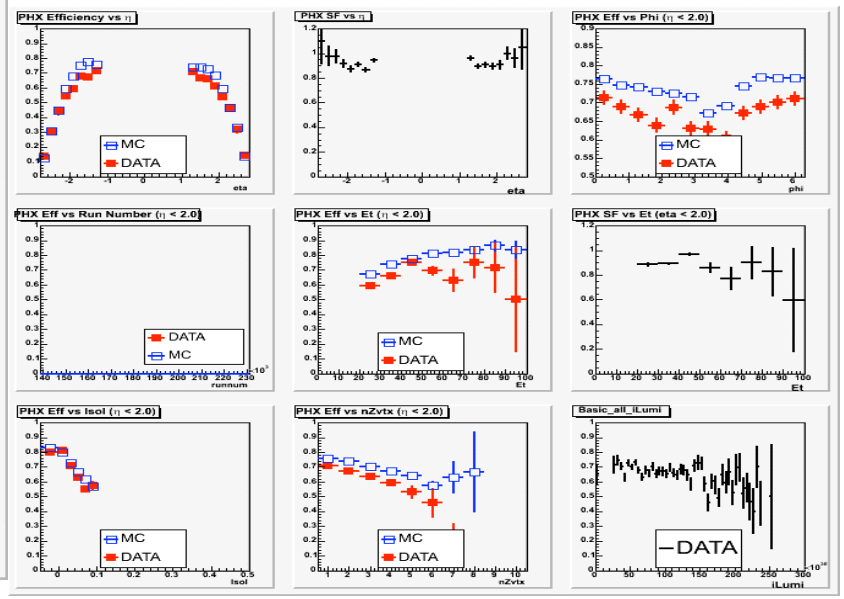


EleID Plots 3

PHX Efficiencies



P13



Muons

Dataset bhelmi: Runs 252836-254686
MC sample : zewkgm (Dec 2007)
GRL : Preliminary GRL for P14

Data: P14 Data on SAM
MC: dataset zemtgm (P13) on SAM

Muon ID Efficiency: ID Cuts

For all events:

No cosmic tag.

For all muon types (including stubless muons):

P_T	$>$	20 GeV/c
E_{EM}	$<$	2+max(0, $(p-100)\cdot 0.0115$) GeV
E_{HAD}	$<$	6+max(0, $(p-100)\cdot 0.028$) GeV
$E_T^{isol.}/P_T$	$<$	0.1
Number of axial SL with $\geq$ 5 hits	$\geq$	3
Number of stereo SL with $\geq$ 5 hits	$\geq$	2
$\lvert z_0 \rvert$	$<$	60 cm
Tracks w/ no silicon hits: $\lvert d_0 \rvert$	$<$	0.2 cm
Tracks w/ silicon hits: $\lvert d_0 \rvert$	$<$	0.02 cm

Additionally for tight CMUP muons:

$\lvert \Delta x_{CMU} \rvert$	$<$	7 cm
$\lvert \Delta x_{CMP} \rvert$	$<$	5 cm
No bluebeam muons, run	$<$	154449

Additionally for tight CMX muons:

$\lvert \Delta x_{CMX} \rvert$	$<$	6 cm
Run	$>$	150144
No miniskirt or keystone muons, run	$<$	190697
No muons in wedge 14 west, runs	$\geq$	190697 and $\leq$ 209760

Table 1: Standard muon ID cuts for 6.1.4 data MC.

Fiducial cuts

For CMUP muons:

Fiducial distance from CMU:		
x-fid	$<$	0 cm
z-fid	$<$	0 cm
Fiducial distance from CMP:		
x-fid	$<$	0 cm
z-fid	$<$	-3 cm
No muons from bluebeam region for run $<$ 154449		

For CMX muons:

ρ_{COT}	$>$	140 cm
Fiducial distance from CMX:		
x-fid	$<$	0 cm
z-fid	$<$	-3 cm
No muons from keystone region for run $<$ 190697		
No muons from miniskirt region for run $<$ 190697		
No muons wedge 14 west for runs $\geq$ 190697 and $\leq$ 209760		

Table 2: Suggested muon fiducial cuts for tight muons in release 6.1.4.

Arches:
$0^\circ \leq \phi \leq 75^\circ$ or $105^\circ \leq \phi \leq 225^\circ$ or $315^\circ \leq \phi < 360^\circ$
Additionally, for runs 190697 - 209760, remove:
$210^\circ < \phi \leq 225^\circ$ if $\eta < 0$
Keystone:
$75^\circ < \phi < 105^\circ$ and $\eta < 0$
Miniskirt:
$225^\circ < \phi < 315^\circ$

Table 3: Cuts on ϕ for distinguishing parts of the CMX detector when determining reconstruction efficiencies.

ID Efficiency Calculation

- A first leg must be a CMUP or CMX muon passing all the cuts given in Tables 1 and 2.
- A second leg must be a muon with a CMUP or CMX stub and satisfy:
  - $P_T > 20$ GeV.
  - fiducial requirements in Table 2.
- The event must not have a cosmic tag.
- The z_0 of the two legs must pass: $|z_0^{(1)} - z_0^{(2)}| < 4$ cm.
- The invariant mass of the two tracks must pass: $81 < m(\mu^+\mu^-)$ GeV/$c^2 < 101$.

We then test the second leg to determine if it passes each of the muon ID cuts given in Table 1.

CMUP ID Efficiency

P13

Cut	Count	Efficiency (%)
No cut	4352	
E_{EM} cut	4222	$97.01^{+0.28}_{-0.26}$
E_{HAD} cut	4282	$98.39^{+0.18}_{-0.21}$
COT hits cut	4352	$100.00^{+0.00}_{-0.04}$
d_0 cut	4338	$99.68^{+0.08}_{-0.11}$
Isolation cut	4206	$96.65^{+0.25}_{-0.28}$
Δx_{CMU} cut	4334	$99.59^{+0.10}_{-0.12}$
Δx_{CMP} cut	4279	$98.32^{+0.20}_{-0.21}$
All above cuts	3928	$90.26^{+0.44}_{-0.49}$
All cuts excl. isol.	4056	$93.20^{+0.38}_{-0.40}$
Sliding isol. cut	4252	$97.70^{+0.23}_{-0.25}$
All cuts (sliding isol.)	3972	$91.27^{+0.41}_{-0.47}$
χ^2 cut	4352	$100.00^{+0.00}_{-0.04}$
All cuts (χ^2)	3928	$90.26^{+0.44}_{-0.49}$
All track cuts	4015	$92.26^{+0.39}_{-0.44}$
All trk cuts excl. isol.	4144	$95.22^{+0.31}_{-0.32}$

P14

Cut	Count	Efficiency (%)
No cut	753	
E_{EM} cut	732	$97.21^{+0.59}_{-0.78}$
E_{HAD} cut	738	$98.01^{+0.48}_{-0.69}$
COT hits cut	753	$100.00^{+0.00}_{-0.24}$
d_0 cut	752	$99.87^{+0.12}_{-0.29}$
Isolation cut	725	$96.28^{+0.64}_{-0.82}$
Δx_{CMU} cut	750	$99.60^{+0.22}_{-0.40}$
Δx_{CMP} cut	735	$97.61^{+0.58}_{-0.69}$
All above cuts	671	$89.11^{+1.22}_{-1.32}$
All cuts excl. isol.	696	$92.43^{+0.98}_{-1.07}$
Sliding isol. cut	726	$96.41^{+0.70}_{-0.86}$
All cuts (sliding isol.)	672	$89.24^{+1.09}_{-1.25}$
χ^2 cut	753	$100.00^{+0.00}_{-0.24}$
All cuts (χ^2)	671	$89.11^{+1.22}_{-1.32}$
All track cuts	690	$91.63^{+0.99}_{-1.15}$
All trk cuts excl. isol.	716	$95.09^{+0.76}_{-0.90}$

TABLE I: Dataset bhmumj_SAMP14: Muon ID efficiencies for CMUP

CMUP ID SF

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Cut	Scale Factor
No cut	
E_{EM} cut	$1.0089^{+0.0029}_{-0.0028}$
E_{HAD} cut	$1.0000^{+0.0019}_{-0.0022}$
COT hits cut	$1.0001^{+0.0000}_{-0.0004}$
d_0 cut	$0.9980^{+0.0008}_{-0.0011}$
Isolation cut	$0.9941^{+0.0027}_{-0.0030}$
Δx_{CMU} cut	$0.9960^{+0.0010}_{-0.0012}$
Δx_{CMP} cut	$0.9884^{+0.0020}_{-0.0022}$
All above cuts	$0.9856^{+0.0049}_{-0.0054}$
All cuts excl. isol.	$0.9914^{+0.0041}_{-0.0043}$
Sliding isol. cut	$0.9997^{+0.0024}_{-0.0026}$
All cuts (sliding isol.)	$0.9917^{+0.0045}_{-0.0052}$
χ^2 cut	$1.0000^{+0.0000}_{-0.0004}$
All cuts (χ^2)	$0.9856^{+0.0049}_{-0.0054}$
All track cuts	$1.0023^{+0.0044}_{-0.0048}$
All trk cuts excl. isol.	$1.0077^{+0.0034}_{-0.0035}$

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Cut	Scale Factor
No cut	
E_{EM} cut	$1.0110^{+0.0062}_{-0.0081}$
E_{HAD} cut	$0.9961^{+0.0049}_{-0.0071}$
COT hits cut	$1.0001^{+0.0000}_{-0.0024}$
d_0 cut	$0.9999^{+0.0012}_{-0.0030}$
Isolation cut	$0.9904^{+0.0066}_{-0.0085}$
Δx_{CMU} cut	$0.9962^{+0.0022}_{-0.0040}$
Δx_{CMP} cut	$0.9812^{+0.0059}_{-0.0069}$
All above cuts	$0.9731^{+0.0134}_{-0.0144}$
All cuts excl. isol.	$0.9833^{+0.0104}_{-0.0114}$
Sliding isol. cut	$0.9865^{+0.0072}_{-0.0088}$
All cuts (sliding isol.)	$0.9697^{+0.0119}_{-0.0137}$
χ^2 cut	$1.0000^{+0.0000}_{-0.0024}$
All cuts (χ^2)	$0.9731^{+0.0134}_{-0.0144}$
All track cuts	$0.9955^{+0.0108}_{-0.0126}$
All trk cuts excl. isol.	$1.0063^{+0.0081}_{-0.0095}$

CMX ID Efficiencies

P13

Cut	Count	Efficiency (%)
No cut	2662	
E_{EM} cut	2584	$97.07^{+0.32}_{-0.37}$
E_{HAD} cut	2607	$97.93^{+0.28}_{-0.30}$
COT hits cut	2661	$99.96^{+0.03}_{-0.09}$
d_0 cut	2649	$99.51^{+0.13}_{-0.18}$
Isolation cut	2560	$96.17^{+0.39}_{-0.39}$
Δx_{CMX} cut	2653	$99.66^{+0.11}_{-0.16}$
All above cuts	2431	$91.32^{+0.52}_{-0.55}$
All cuts excl. isol.	2515	$94.48^{+0.47}_{-0.46}$
Sliding isol. cut	2589	$97.26^{+0.33}_{-0.36}$
All cuts (sliding isol.)	2458	$92.34^{+0.51}_{-0.56}$
χ^2 cut	2662	$100.00^{+0.00}_{-0.07}$
All cuts (χ^2)	2431	$91.32^{+0.52}_{-0.55}$
All track cuts	2438	$91.59^{+0.55}_{-0.62}$
All trk cuts excl. isol.	2524	$94.82^{+0.42}_{-0.46}$

P14

Cut	Count	Efficiency (%)
No cut	489	
E_{EM} cut	470	$96.11^{+0.91}_{-1.05}$
E_{HAD} cut	484	$98.98^{+0.46}_{-0.66}$
COT hits cut	489	$100.00^{+0.00}_{-0.38}$
d_0 cut	487	$99.59^{+0.29}_{-0.54}$
Isolation cut	476	$97.34^{+0.75}_{-0.91}$
Δx_{CMX} cut	487	$99.59^{+0.29}_{-0.54}$
All above cuts	450	$92.02^{+1.24}_{-1.50}$
All cuts excl. isol.	463	$94.68^{+0.97}_{-1.18}$
Sliding isol. cut	480	$98.16^{+0.62}_{-0.85}$
All cuts (sliding isol.)	454	$92.84^{+1.20}_{-1.34}$
χ^2 cut	489	$100.00^{+0.00}_{-0.38}$
All cuts (χ^2)	450	$92.02^{+1.24}_{-1.50}$
All track cuts	451	$92.23^{+1.23}_{-1.31}$
All trk cuts excl. isol.	464	$94.89^{+0.96}_{-1.19}$

TABLE II: Dataset bhmumj_SAMP14: Muon ID efficiencies for CMX

CMX ID SF

P13

Cut	Scale Factor
No cut	
E_{EM} cut	$1.0080^{+0.0034}_{-0.0039}$
E_{HAD} cut	$1.0014^{+0.0030}_{-0.0031}$
COT hits cut	$0.9997^{+0.0003}_{-0.0009}$
d_0 cut	$0.9960^{+0.0013}_{-0.0018}$
Isolation cut	$0.9882^{+0.0040}_{-0.0041}$
Δx_{CMX} cut	$0.9983^{+0.0011}_{-0.0016}$
All above cuts	$0.9972^{+0.0058}_{-0.0061}$
All cuts excl. isol.	$1.0057^{+0.0051}_{-0.0050}$
Sliding isol. cut	$0.9938^{+0.0034}_{-0.0037}$
All cuts (sliding isol.)	$1.0029^{+0.0057}_{-0.0062}$
χ^2 cut	$1.0000^{+0.0000}_{-0.0007}$
All cuts (χ^2)	$0.9972^{+0.0058}_{-0.0061}$
All track cuts	$0.9982^{+0.0061}_{-0.0068}$
All trk cuts excl. isol.	$1.0075^{+0.0046}_{-0.0049}$

P14

Cut	Scale Factor
No cut	
E_{EM} cut	$0.9980^{+0.0095}_{-0.0109}$
E_{HAD} cut	$1.0120^{+0.0047}_{-0.0068}$
COT hits cut	$1.0001^{+0.0000}_{-0.0038}$
d_0 cut	$0.9968^{+0.0029}_{-0.0054}$
Isolation cut	$1.0002^{+0.0078}_{-0.0093}$
Δx_{CMX} cut	$0.9976^{+0.0029}_{-0.0054}$
All above cuts	$1.0049^{+0.0136}_{-0.0164}$
All cuts excl. isol.	$1.0079^{+0.0104}_{-0.0126}$
Sliding isol. cut	$1.0030^{+0.0064}_{-0.0087}$
All cuts (sliding isol.)	$1.0084^{+0.0131}_{-0.0146}$
χ^2 cut	$1.0000^{+0.0000}_{-0.0038}$
All cuts (χ^2)	$1.0049^{+0.0136}_{-0.0164}$
All track cuts	$1.0052^{+0.0134}_{-0.0143}$
All trk cuts excl. isol.	$1.0082^{+0.0103}_{-0.0126}$

Reconstruction Efficiency

The reconstruction efficiency is defined as the probability to find a muon stub and link it to a track. First, to know whether we should find a stub or not we have to know that the muon is fiducial in any of the muon chambers. We use the **MuonFiducialTool** class for this purpose. We define a track as being fiducial in a given muon system if it passes the cuts defined in Tables 2 and 3 for that system.

Events Selection
No cosmic tag and 2 tracks passing the following:

- Oppositely charged.
- $|z_0^{(1)} - z_0^{(2)}| < 4$ cm.
- $81\ \mathrm{GeV}/c^2 < m(\mu^+\mu^-) < 101\ \mathrm{GeV}/c^2$
- The first leg must be a reconstructed **CdfMuon** passing all the ID and fiducial cuts given in Tables 1 and 2. It must also match to the level 1 trigger information.
- The second leg must be fiducial in both the CMU and CMP sub-detectors (or the CMX sub-detector) and satisfy:
  - $P_T > 20$ GeV.
  - $E_{EM} < 1.5 \cdot (2+\max(0, (p-100) \cdot 0.0115))$ GeV
  - $E_{HAD} < 1.5 \cdot (6+\max(0, (p-100) \cdot 0.028)$ GeV

$$\varepsilon_{Reco} = \frac{\#\text{tracks fiducial and linked to a stub}}{\#\text{ tracks fiducial}}$$

Reconstruction Efficiency

The first leg must pass all the ID and Fid. cuts and must match to the level 1 trigger information. If the second leg is Fiducial, and pass "P_T, E_{EM}, E_{HAD}" cuts, we examine this track to see if is linked to a muon stub or not.

P11

Category	Fiducial	w/ Stub	Efficiency (%)
CMUP	3769	3412	$90.53^{+0.46}_{-0.51}$
CMX	2333	2221	$95.20^{+0.43}_{-0.50}$
CMX Arches	1829	1796	$98.20^{+0.32}_{-0.37}$
CMX Miniskirt	422	346	$81.99^{+1.90}_{-2.01}$
CMX Keystone	82	79	$96.34^{+1.90}_{-3.47}$
CMU-only	957	840	$87.77^{+1.04}_{-1.10}$
CMP-only	1120	1015	$90.62^{+0.83}_{-0.93}$

P12

Category	Fiducial	w/ Stub	Efficiency (%)
CMUP	2534	2311	$91.20^{+0.55}_{-0.62}$
CMX	1524	1455	$95.47^{+0.57}_{-0.60}$
CMX Arches	1165	1144	$98.20^{+0.41}_{-0.47}$
CMX Miniskirt	283	238	$84.10^{+2.13}_{-2.56}$
CMX Keystone	76	73	$96.05^{+2.19}_{-3.67}$
CMU-only	651	567	$87.10^{+1.28}_{-1.45}$
CMP-only	606	558	$92.08^{+1.18}_{-1.16}$
CMX MiniKey	359	311	$86.63^{+1.75}_{-1.96}$

P13

Category	Fiducial	w/ Stub	Efficiency (%)
CMUP	4644	4240	$91.30^{+0.42}_{-0.46}$
CMX	2711	2587	$95.43^{+0.40}_{-0.43}$
CMX Arches	2163	2113	$97.69^{+0.33}_{-0.35}$
CMX Miniskirt	450	382	$84.89^{+1.73}_{-1.98}$
CMX Keystone	98	92	$93.88^{+2.41}_{-3.45}$
CMU-only	1128	1002	$88.83^{+0.97}_{-0.99}$
CMP-only	1284	1184	$92.21^{+0.71}_{-0.85}$
CMX MiniKey	548	474	$86.50^{+1.49}_{-1.63}$

P14

Category	Fiducial	w/ Stub	Efficiency (%)
CMUP	815	732	$89.82^{+1.05}_{-1.19}$
CMX	487	471	$96.71^{+0.80}_{-1.06}$
CMX Arches	373	367	$98.39^{+0.68}_{-0.98}$
CMX Miniskirt	91	82	$90.11^{+3.05}_{-4.37}$
CMX Keystone	23	22	$95.65^{+3.96}_{-9.13}$
CMU-only	200	179	$89.50^{+2.10}_{-2.68}$
CMP-only	216	199	$92.13^{+1.91}_{-2.19}$
CMX MiniKey	114	104	$91.23^{+2.72}_{-3.53}$

Reconstruction SF

P11

Category	Scale Factor
CMUP	$0.9276^{+0.0048}_{-0.0053}$
CMX	$0.9557^{+0.0043}_{-0.0050}$
CMX Arches	$0.9840^{+0.0032}_{-0.0037}$
CMX Miniskirt	$0.8277^{+0.0192}_{-0.0203}$
CMX Keystone	$0.9736^{+0.0193}_{-0.0351}$
CMU-only	$0.8991^{+0.0107}_{-0.0114}$
CMP-only	$0.9224^{+0.0085}_{-0.0095}$
CMX MiniKey	$0.8515^{+0.0173}_{-0.0173}$

P13

Category	Scale Factor
CMUP	$0.9371^{+0.0044}_{-0.0047}$
CMX	$0.9577^{+0.0040}_{-0.0043}$
CMX Arches	$0.9785^{+0.0034}_{-0.0035}$
CMX Miniskirt	$0.8567^{+0.0175}_{-0.0200}$
CMX Keystone	$0.9499^{+0.0245}_{-0.0350}$
CMU-only	$0.9100^{+0.0099}_{-0.0102}$
CMP-only	$0.9379^{+0.0072}_{-0.0087}$
CMX MiniKey	$0.8733^{+0.0151}_{-0.0151}$

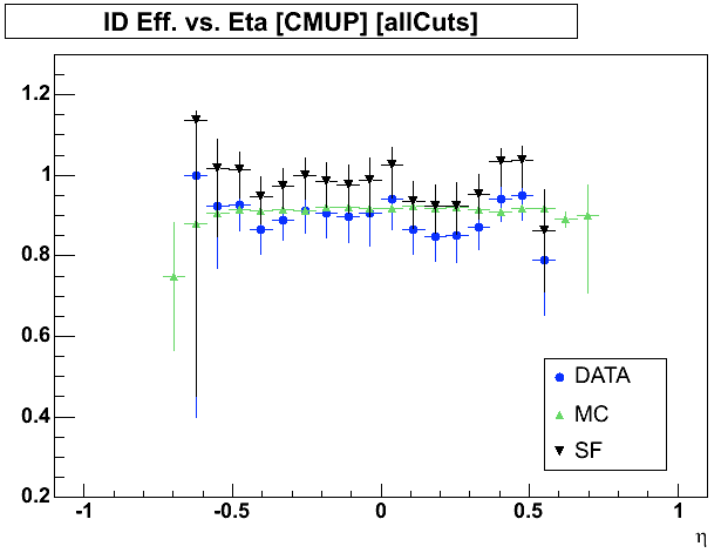
P12

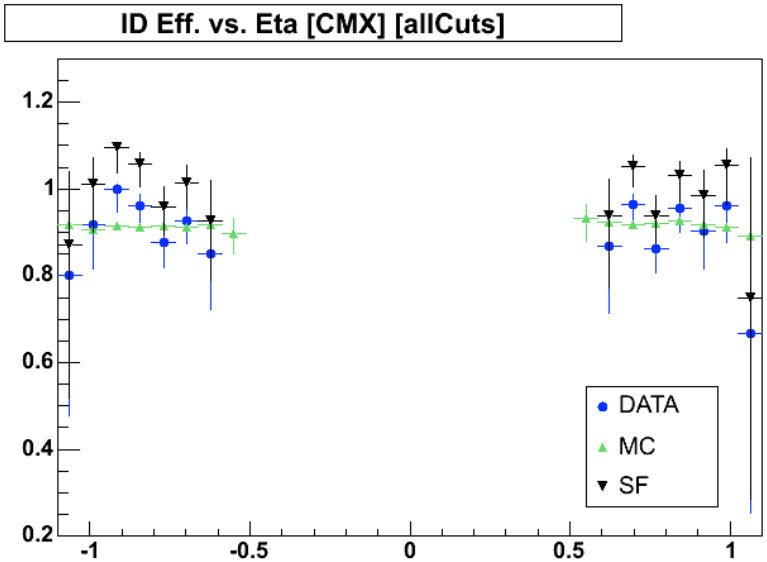
Category	Scale Factor
CMUP	$0.9345^{+0.0056}_{-0.0064}$
CMX	$0.9584^{+0.0058}_{-0.0060}$
CMX Arches	$0.9840^{+0.0041}_{-0.0047}$
CMX Miniskirt	$0.8490^{+0.0215}_{-0.0258}$
CMX Keystone	$0.9706^{+0.0222}_{-0.0372}$
CMU-only	$0.8921^{+0.0132}_{-0.0149}$
CMP-only	$0.9372^{+0.0121}_{-0.0118}$
CMX MiniKey	$0.8747^{+0.0177}_{-0.0177}$

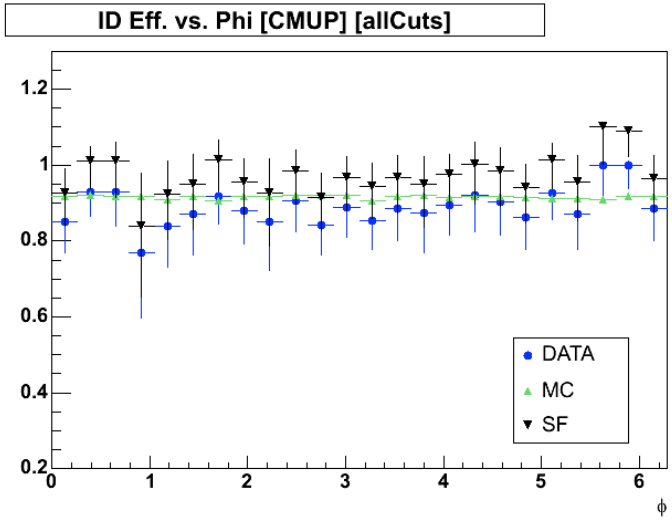
P14

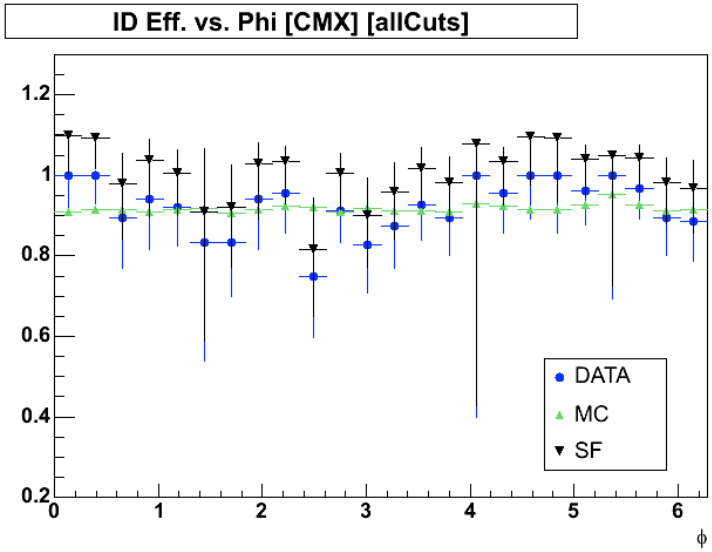
Category	Scale Factor
CMUP	$0.9218^{+0.0108}_{-0.0123}$
CMX	$0.9706^{+0.0080}_{-0.0106}$
CMX Arches	$0.9856^{+0.0068}_{-0.0098}$
CMX Miniskirt	$0.9093^{+0.0308}_{-0.0441}$
CMX Keystone	$0.9678^{+0.0401}_{-0.0924}$
CMU-only	$0.9169^{+0.0216}_{-0.0275}$
CMP-only	$0.9371^{+0.0195}_{-0.0223}$
CMX MiniKey	$0.9211^{+0.0274}_{-0.0274}$

Reco and ID Plots

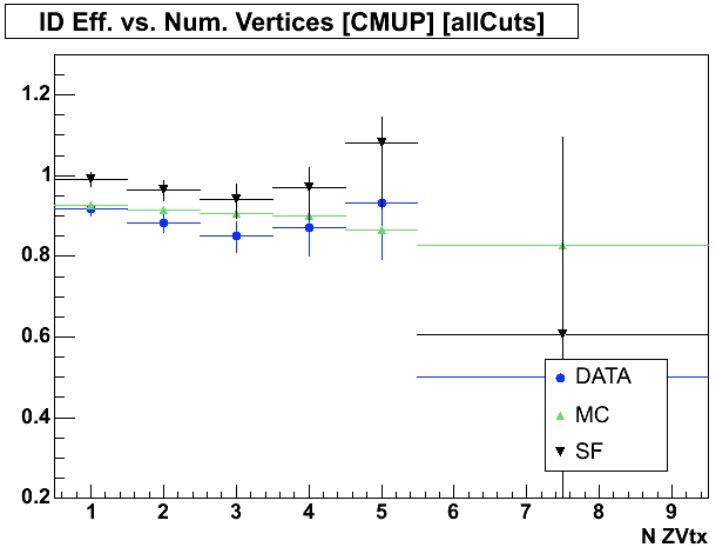


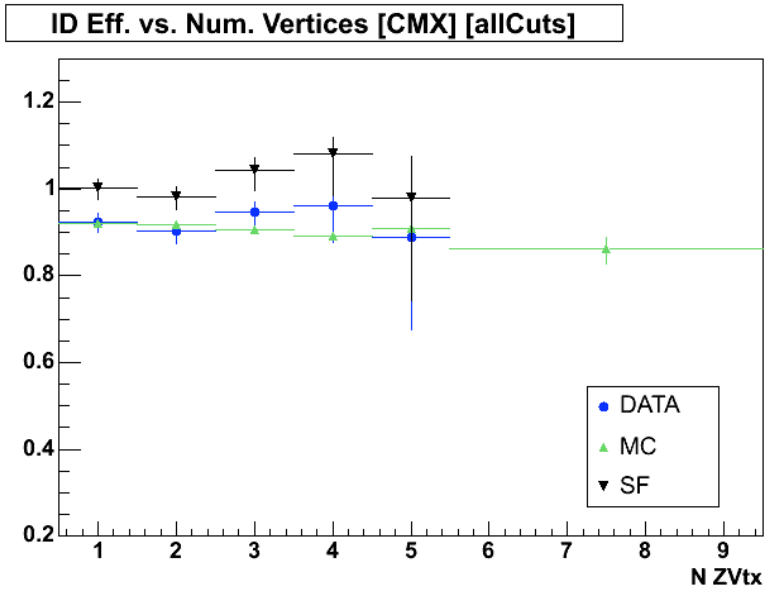


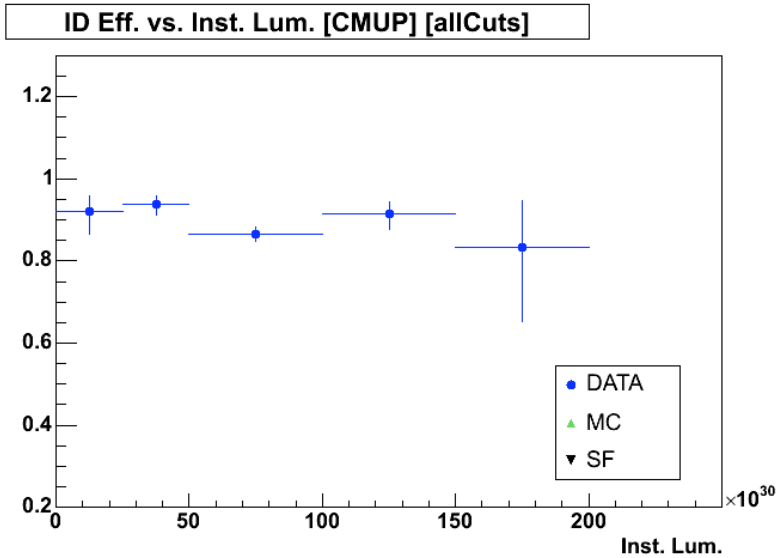


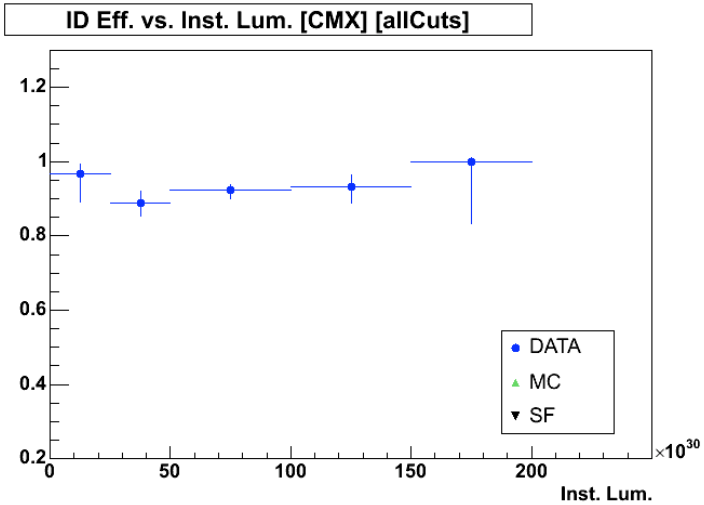


Reco and ID Plots

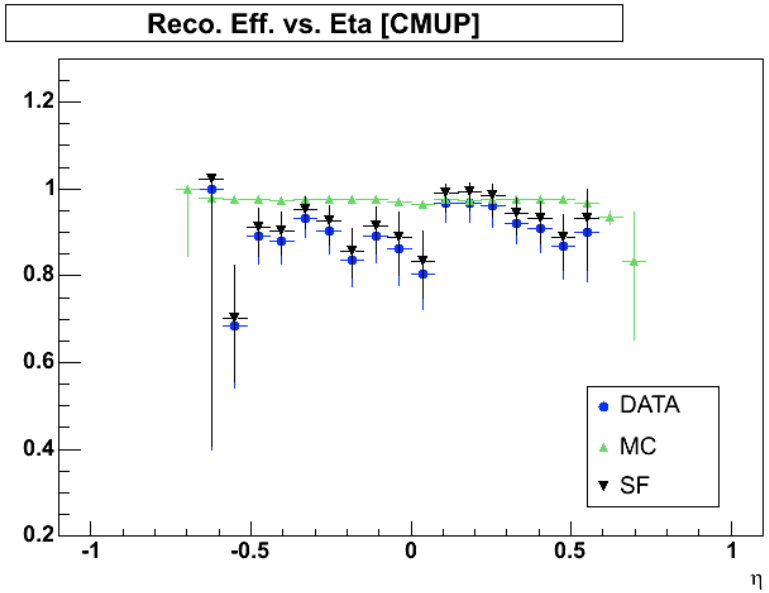


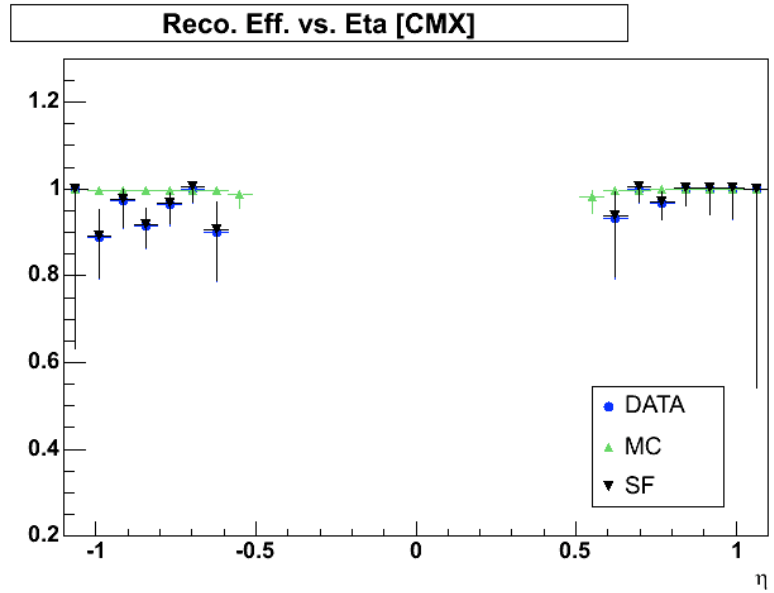


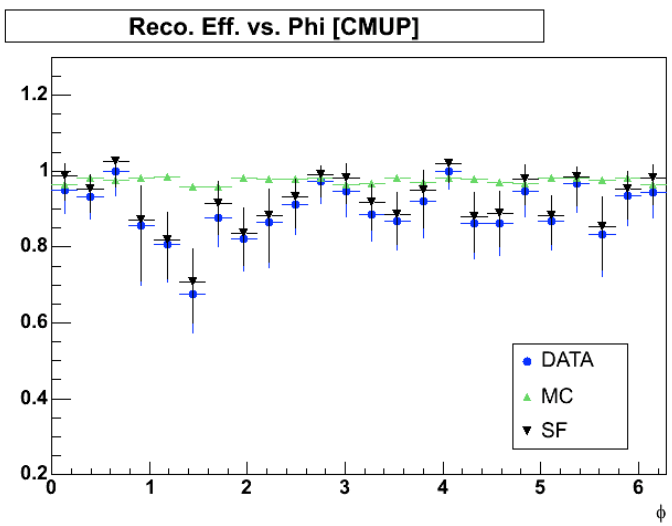


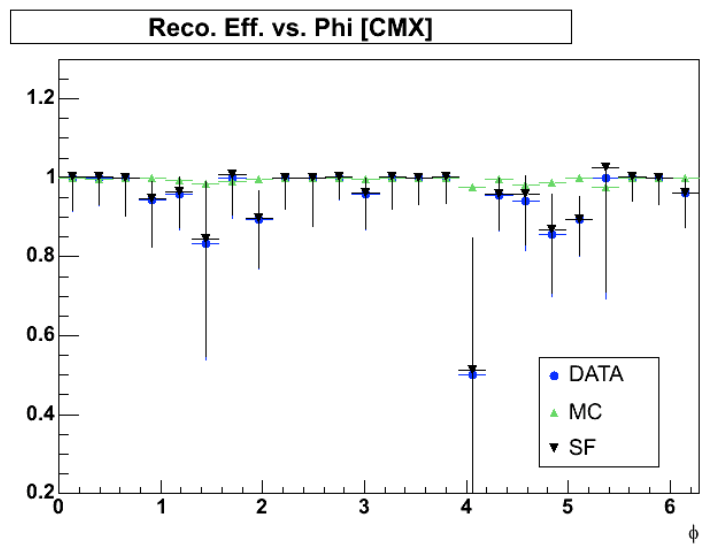


Reco and ID Plots









Conclusions

- Preliminary results for P14 electron ID, Muon ID/Reco efficiencies look reasonable
- Still missing:
  - Final GRL
  - MC
  - Trigger Efficiencies
    - Dps accounting for muon triggers
    - Electron Trigger efficiency