p14 Z(ee) + Jets

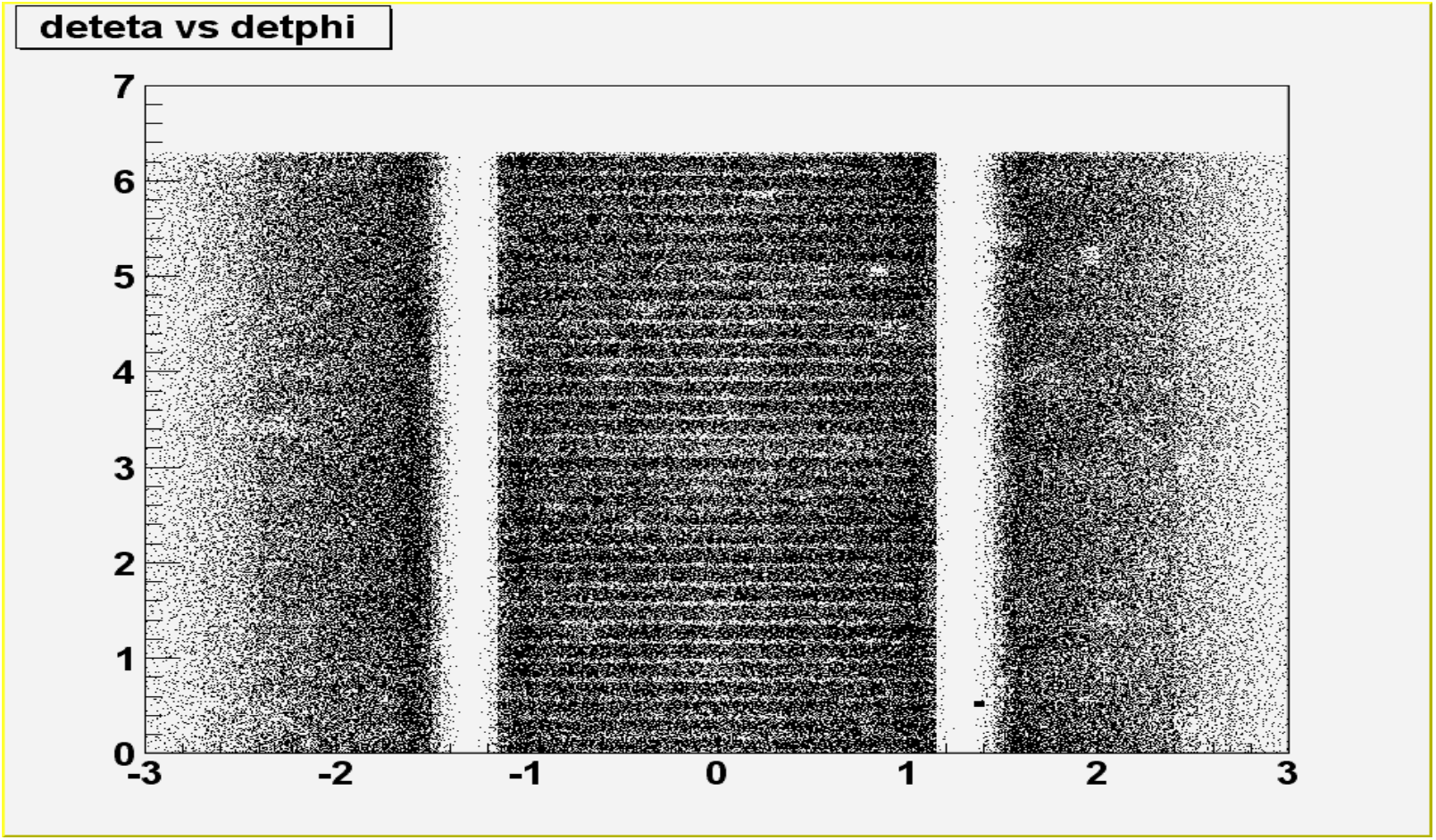
- Based on 210 pb^{-1} of recorded lumi (19 April 2002 - 7 Sept 2003)
- CSG's 1EMloose skim:
  - (ID=10 OR |ID|=11) AND (pT>15GeV)
  - p14
- ATHENA'lized and further skimmed down by Alan !
- No badrun, LBNs, trigger cuts yet

- Electron selection:
- EMF>.9
- Iso<.15
- Hmx<20.
- pT>20GeV
- Including phi cracks
- CC-CC: |eta|<1.1
- Requiring at least one trackmatched electron
- 80 GeV < M_{ee} < 100 GeV

- Jet selection:
- .05<EMF<.95
- Chfrac<.4
- HotFrac<10.
- N90>1
- F90 cut
- dR(Jet-EM)>.45
- pT>20GeV

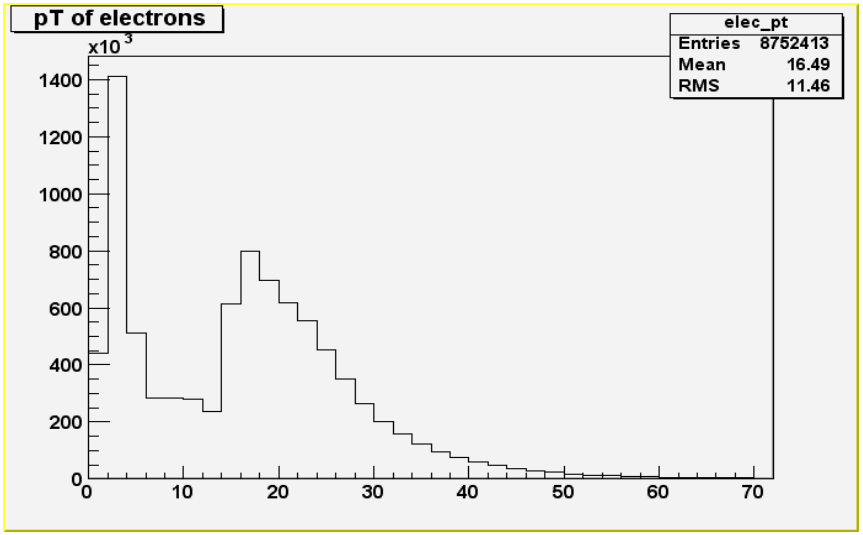
- Some numbers:
- 520 million events to tape
- 74 million in 1EMloose skim
- 8.7 million events in ATHENA root tuple format
- 8542 Z candidate events (at least one trk matched electron)
- 202 dijet events

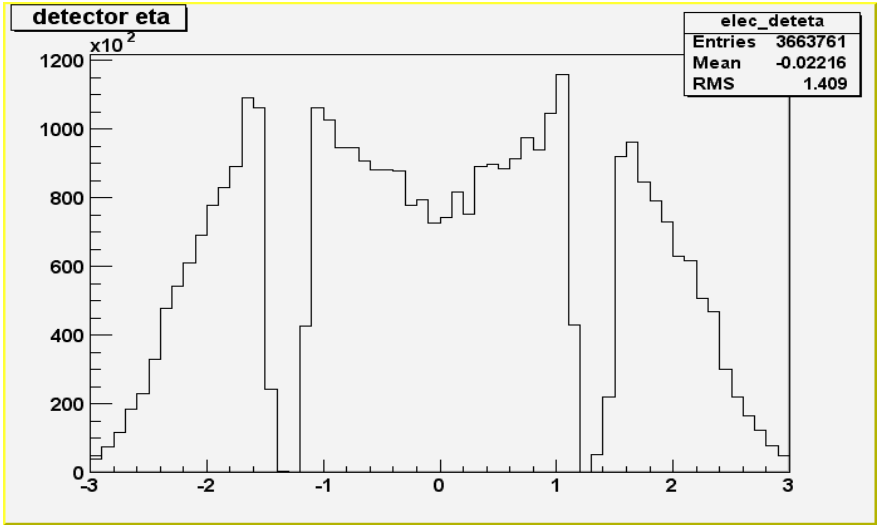
CAL

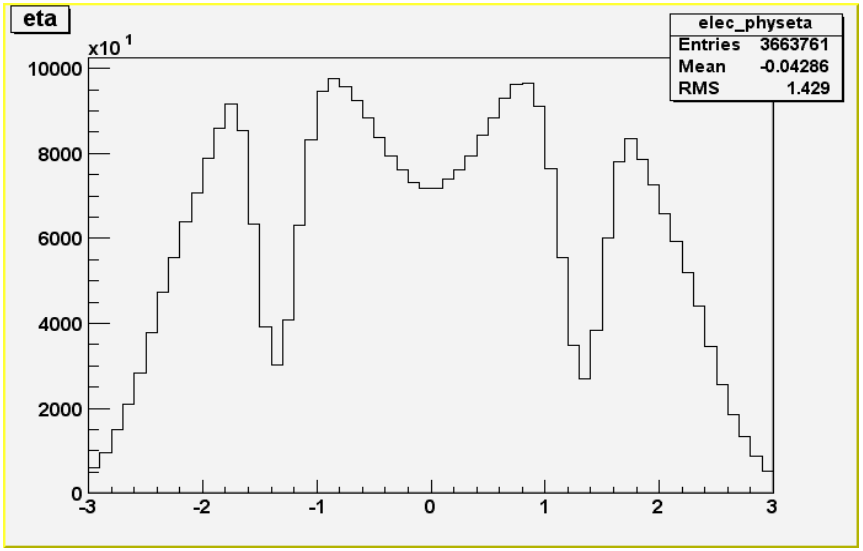


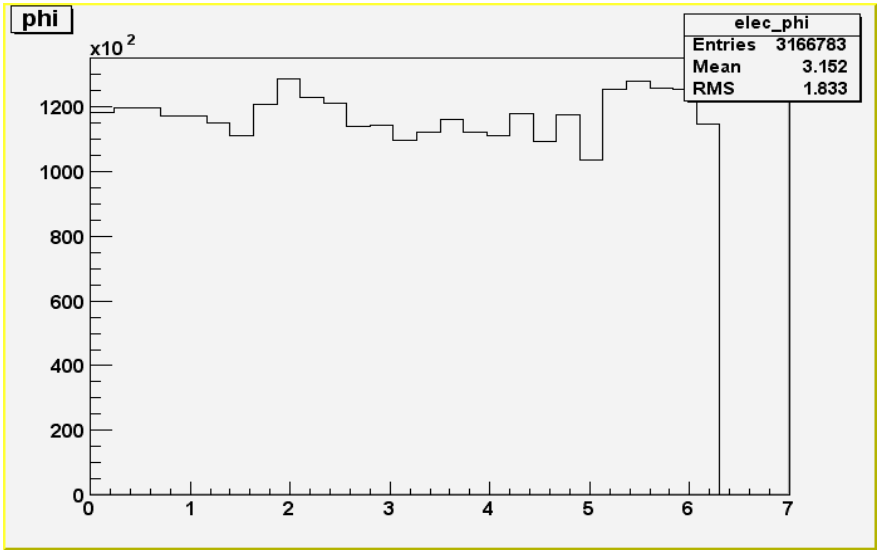
All electrons passing EMF, Iso, HMx, pT cuts - no fiducial cuts

Electrons

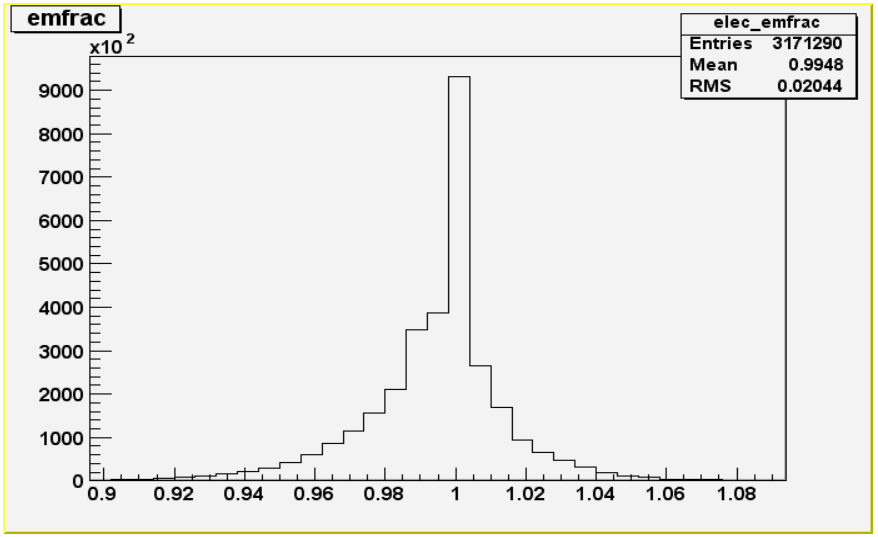

pT of electrons
elec_pt
Entries 8752413
Mean 16.49
RMS 11.46
x10 3
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70

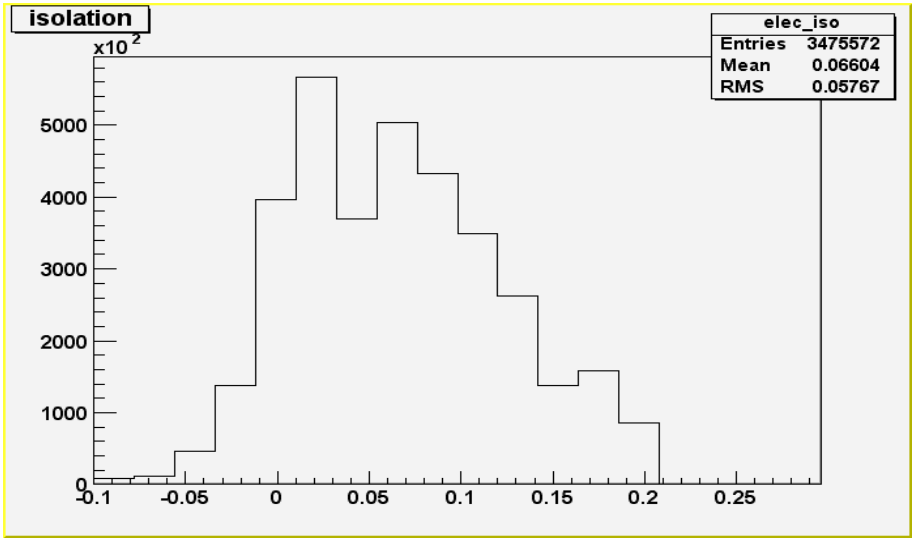

detector eta
elec_deteta
Entries 3663761
Mean -0.02216
RMS 1.409
x10 2
1200
1000
800
600
400
200
0
-3
-2
-1
0
1
2
3

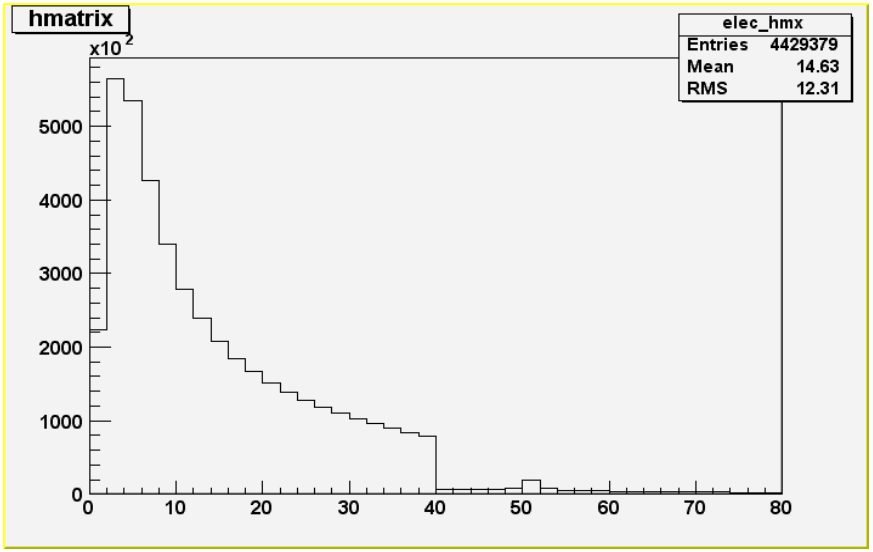

eta
elec_physeta
Entries 3663761
Mean -0.04286
RMS 1.429
x10 1
10000
8000
6000
4000
2000
0
-3
-2
-1
0
1
2
3


phi
elec_phi
Entries 3166783
Mean 3.152
RMS 1.833
x10 2
1200
1000
800
600
400
200
0
0
1
2
3
4
5
6
7

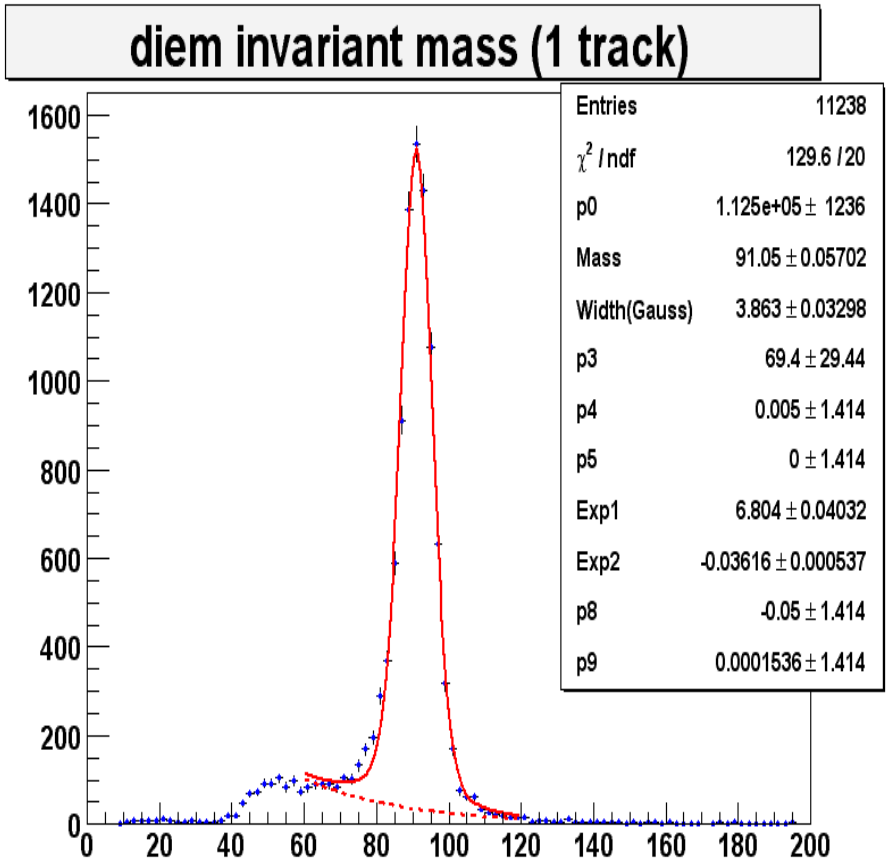
Electrons

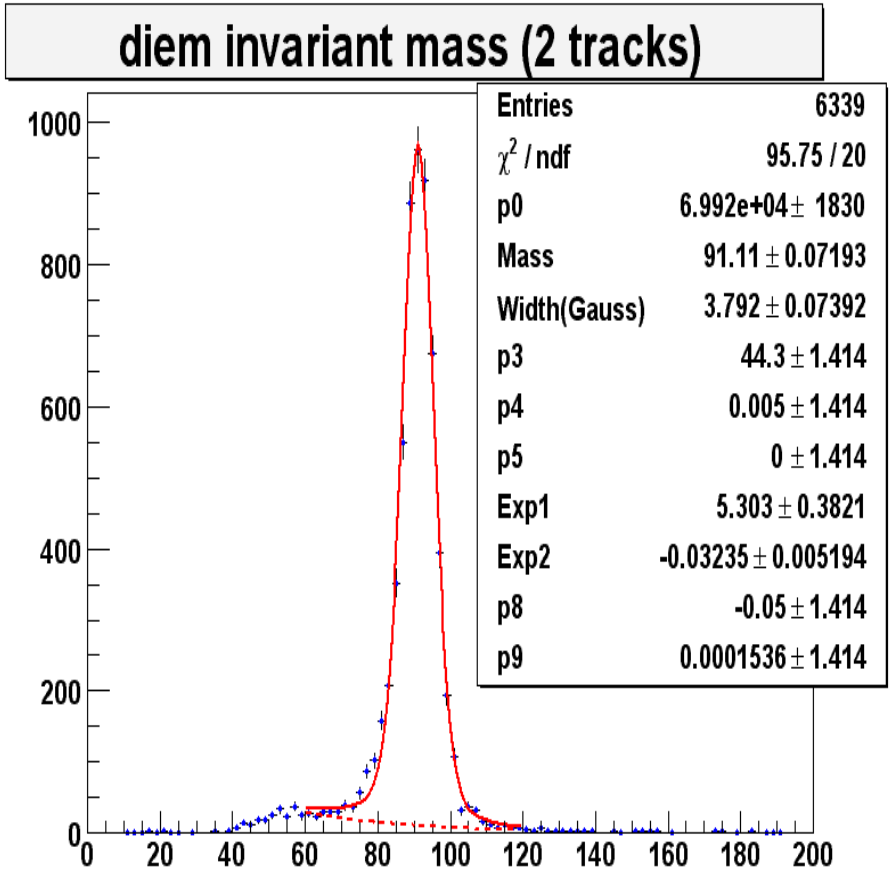

emfrac
elec_emfrac
Entries 3171290
Mean 0.9948
RMS 0.02044
x10 2
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0.9
0.92
0.94
0.96
0.98
1
1.02
1.04
1.06
1.08


isolation
elec_iso
Entries 3475572
Mean 0.06604
RMS 0.05767
x10 2
5000
4000
3000
2000
1000
0
-0.1
-0.05
0
0.05
0.1
0.15
0.2
0.25

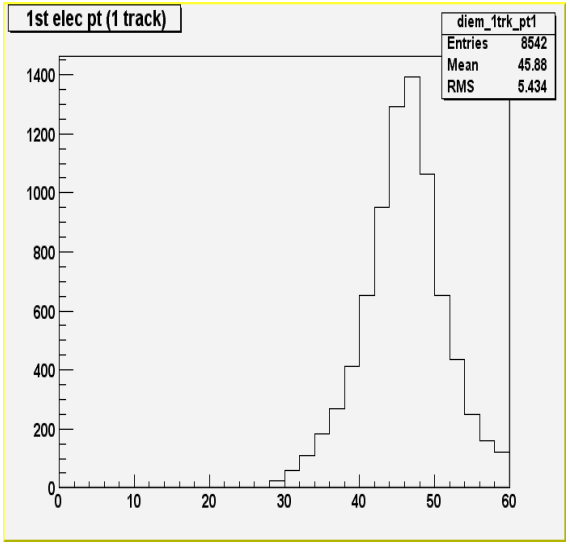

hmatrix
elec_hmx
Entries 4429379
Mean 14.63
RMS 12.31
x10 2
5000
4000
3000
2000
1000
0
0
10
20
30
40
50
60
70
80

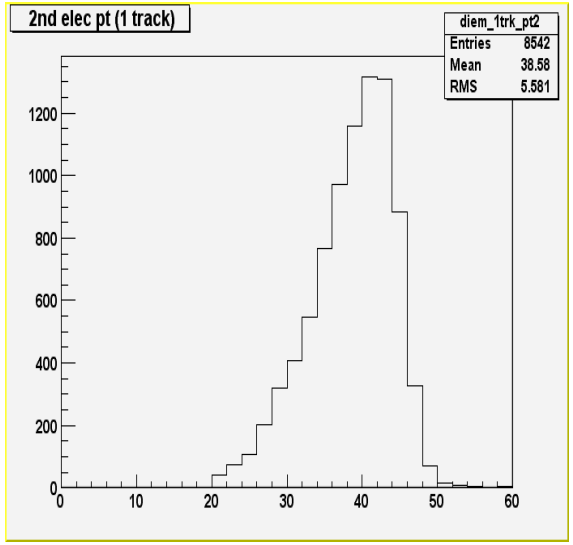
Z peaks

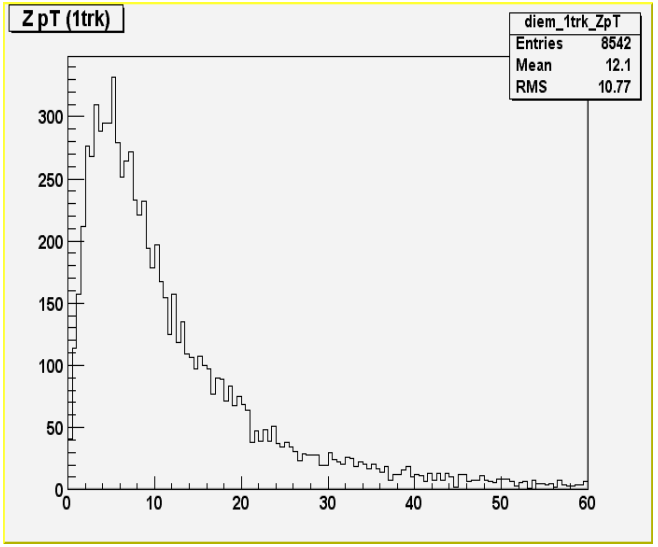

diem invariant mass (1 track)
Entries 11238
χ^2 / ndf 129.6 / 20
p0 1.125e+05 ± 1236
Mass 91.05 ± 0.05702
Width(Gauss) 3.863 ± 0.03298
p3 69.4 ± 29.44
p4 0.005 ± 1.414
p5 0 ± 1.414
Exp1 6.804 ± 0.04032
Exp2 -0.03616 ± 0.000537
p8 -0.05 ± 1.414
p9 0.0001536 ± 1.414

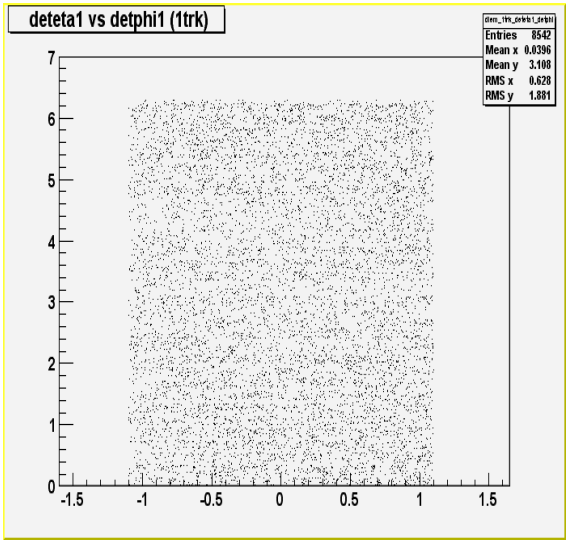

diem invariant mass (2 tracks)
Entries 6339
χ^2 / ndf 95.75 / 20
p0 6.992e+04 ± 1830
Mass 91.11 ± 0.07193
Width(Gauss) 3.792 ± 0.07392
p3 44.3 ± 1.414
p4 0.005 ± 1.414
p5 0 ± 1.414
Exp1 5.303 ± 0.3821
Exp2 -0.03235 ± 0.005194
p8 -0.05 ± 1.414
p9 0.0001536 ± 1.414

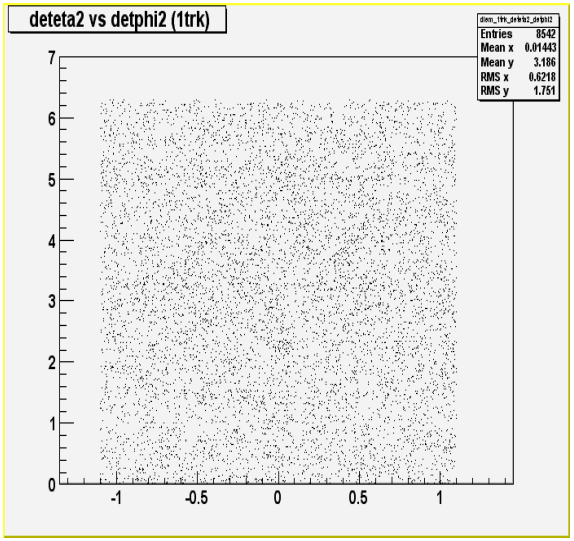
Z (1trk) plots

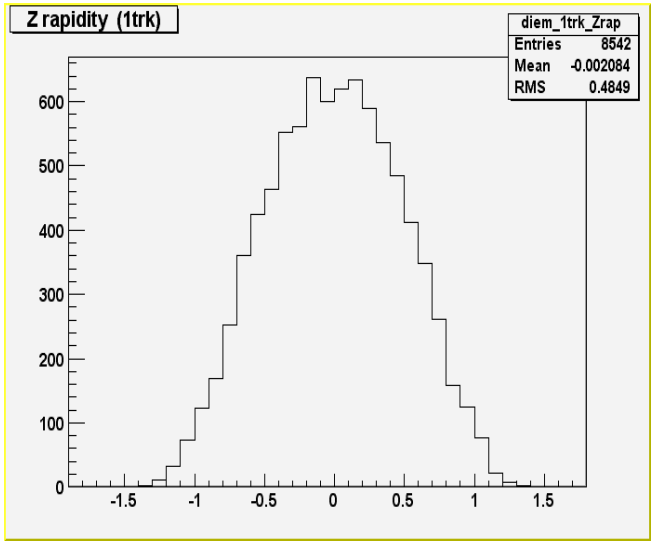

1st elec pt (1 track)
diem_1trk_pt1
Entries 8542
Mean 45.88
RMS 5.434


2nd elec pt (1 track)
diem_1trk_pt2
Entries 8542
Mean 38.58
RMS 5.581

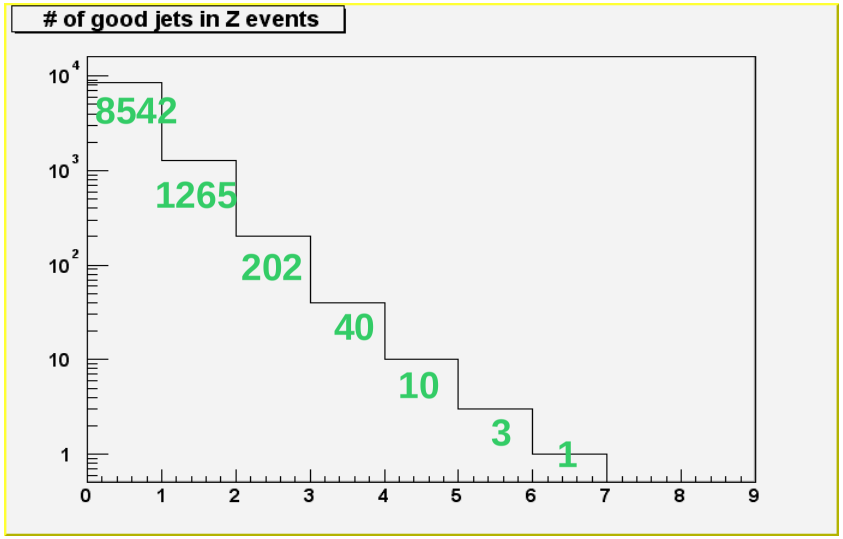

Z pT (1trk)
diem_1trk_ZpT
Entries 8542
Mean 12.1
RMS 10.77

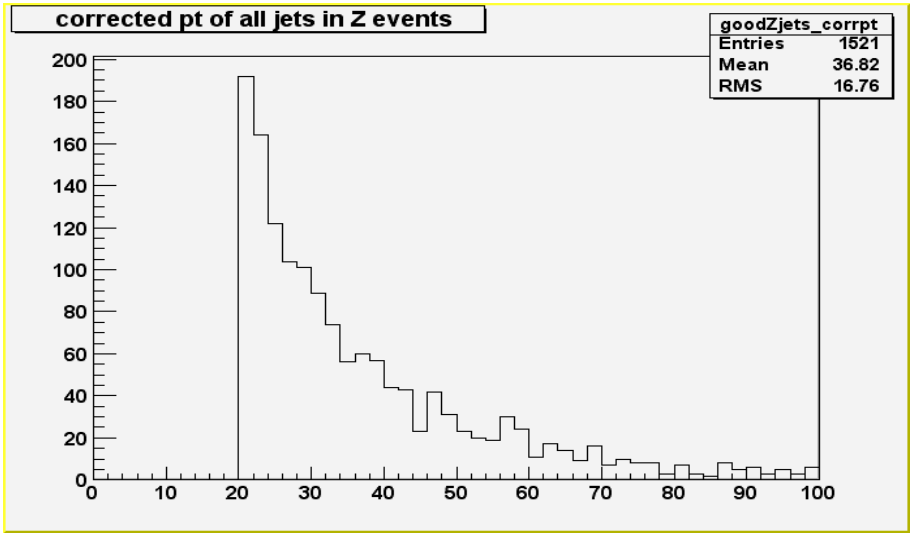

deteta1 vs detphi1 (1trk)
Entries 8542
Mean x 0.0396
Mean y 3.108
RMS x 0.628
RMS y 1.881

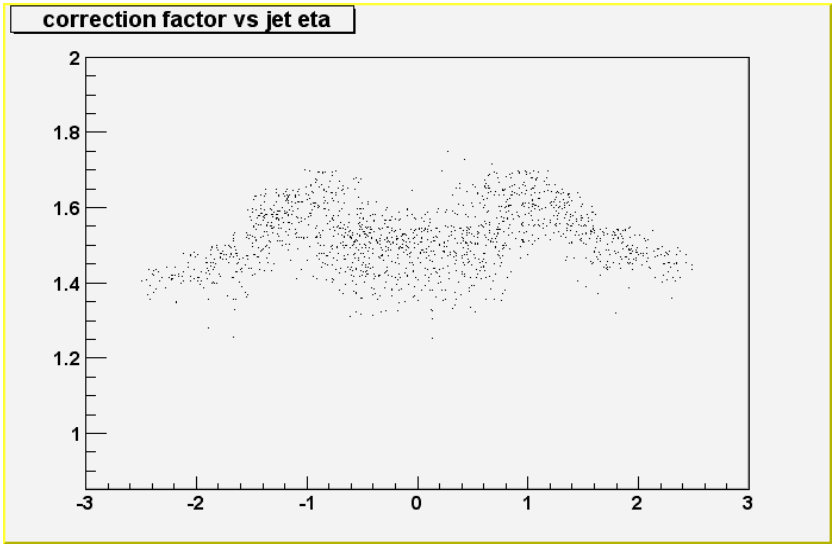

deteta2 vs detphi2 (1trk)
Entries 8542
Mean x 0.01443
Mean y 3.186
RMS x 0.6218
RMS y 1.751

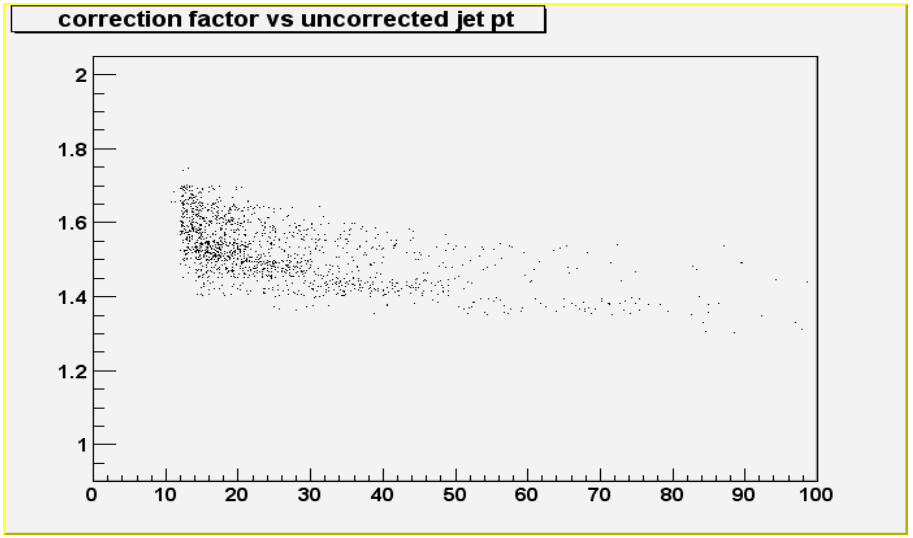

Z rapidity (1trk)
diem_1trk_Zrap
Entries 8542
Mean -0.002084
RMS 0.4849

Jets (after Z[1trk] mass window cut)

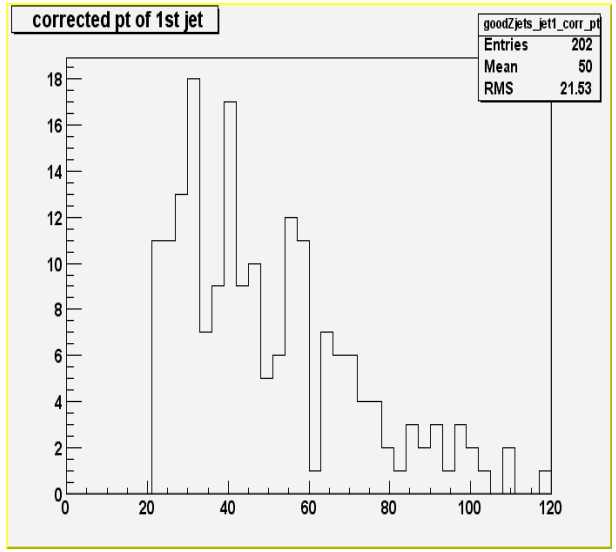


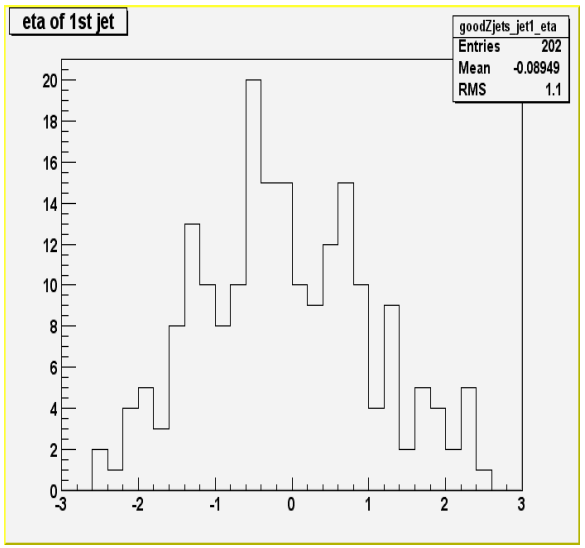


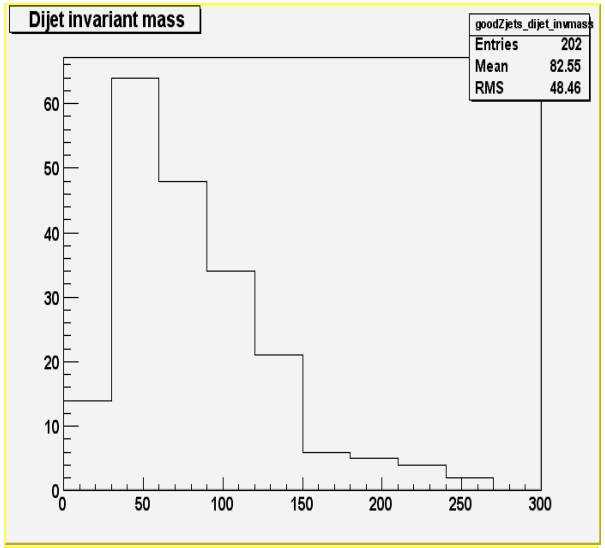


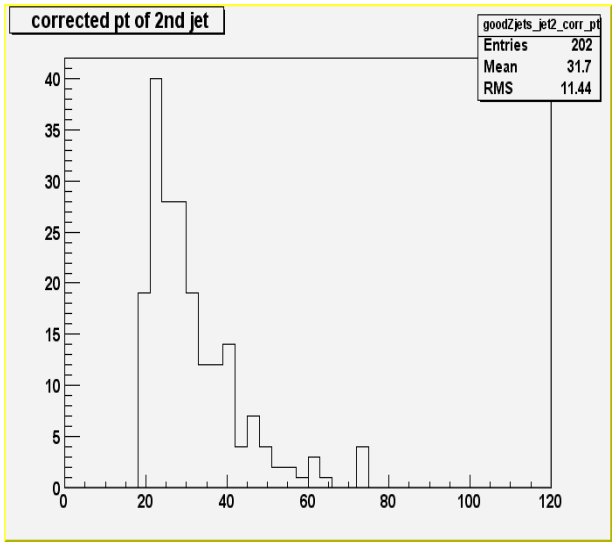


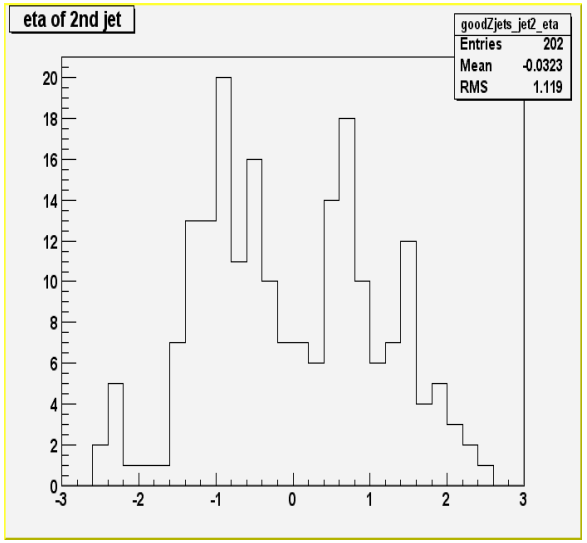
Dijets

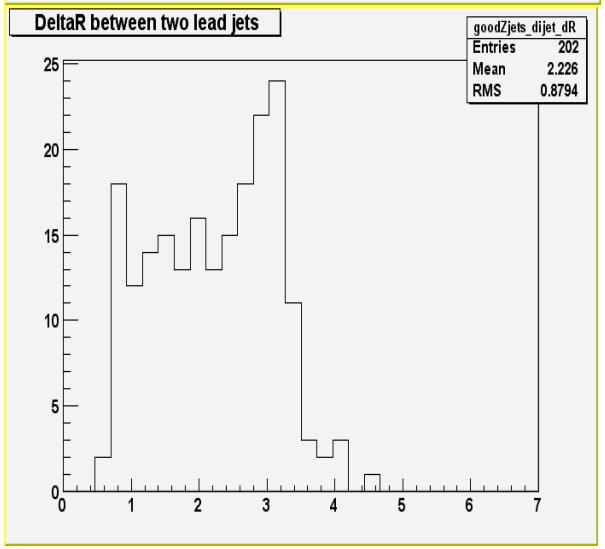

corrected pt of 1st jet
goodZjets_jet1_corr_pt
Entries 202
Mean 50
RMS 21.53


eta of 1st jet
goodZjets_jet1_eta
Entries 202
Mean -0.08949
RMS 1.1


Dijet invariant mass
goodZjets_dijet_invmass
Entries 202
Mean 82.55
RMS 48.46


corrected pt of 2nd jet
goodZjets_jet2_corr_pt
Entries 202
Mean 31.7
RMS 11.44


eta of 2nd jet
goodZjets_jet2_eta
Entries 202
Mean -0.0323
RMS 1.119


DeltaR between two lead jets
goodZjets_dijet_dR
Entries 202
Mean 2.226
RMS 0.8794