Preliminaries

Testing conditions unchanged w.r.t. last presentation

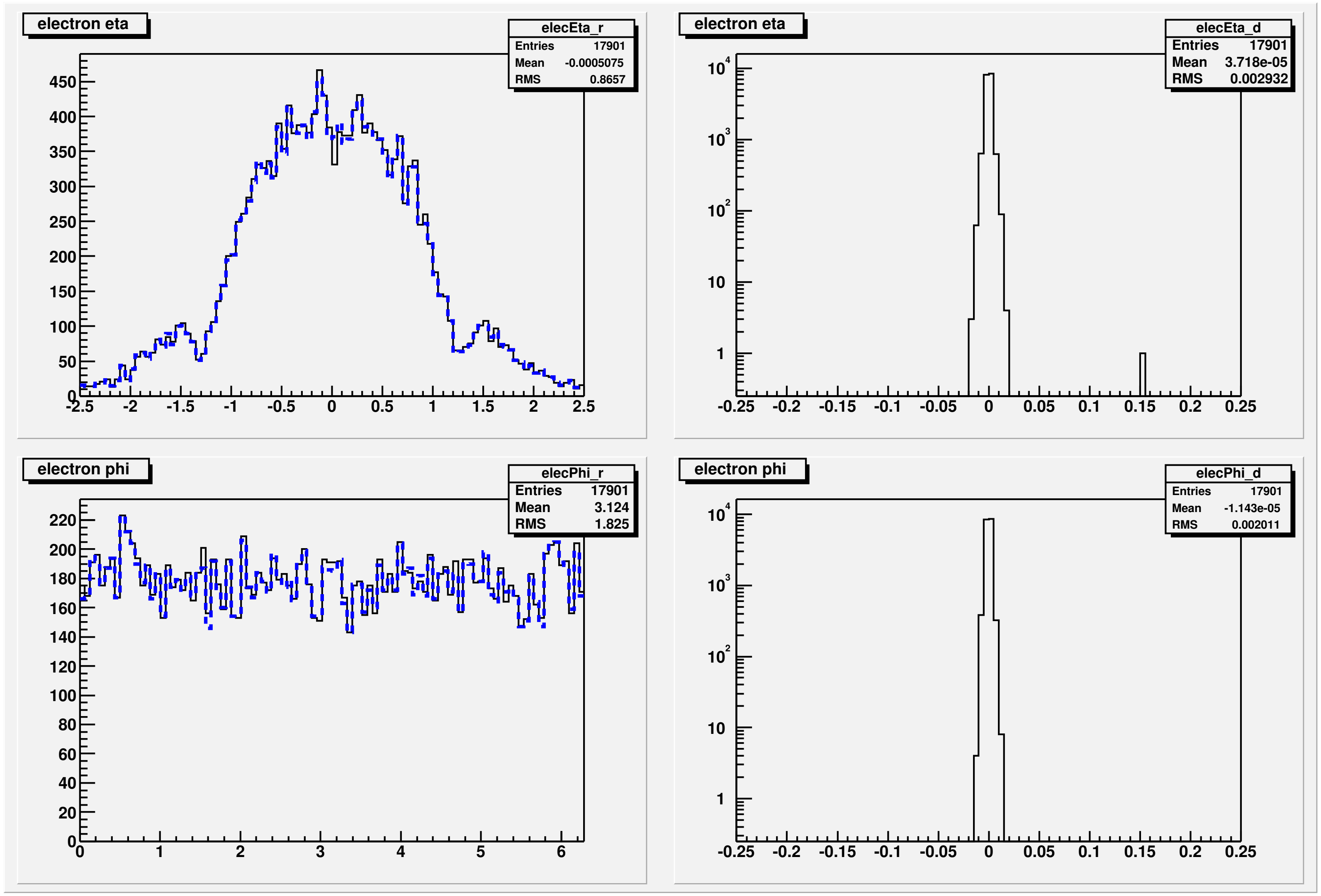
- SAM Dataset Definition: reco_p11.09.00_lancs_ttbar_0mb
- Executable: bcJetAnalyze_x t02.33.00 (w/ minor patch):
  - Protect against crash in eTag recomputations (crashes in EMparticle::road_eop() if road had no energy.
    Still not fixed in t02.35.00??

- Comparison:
  1. Run bcjet_analyze directly on reco Chunks (black)
  2. Drop reco Chunks, unpack ThumbNailChunk, run bcjet_analyze (dashed, blue)
- Compare Block by Block (bcJet & individual taggers)

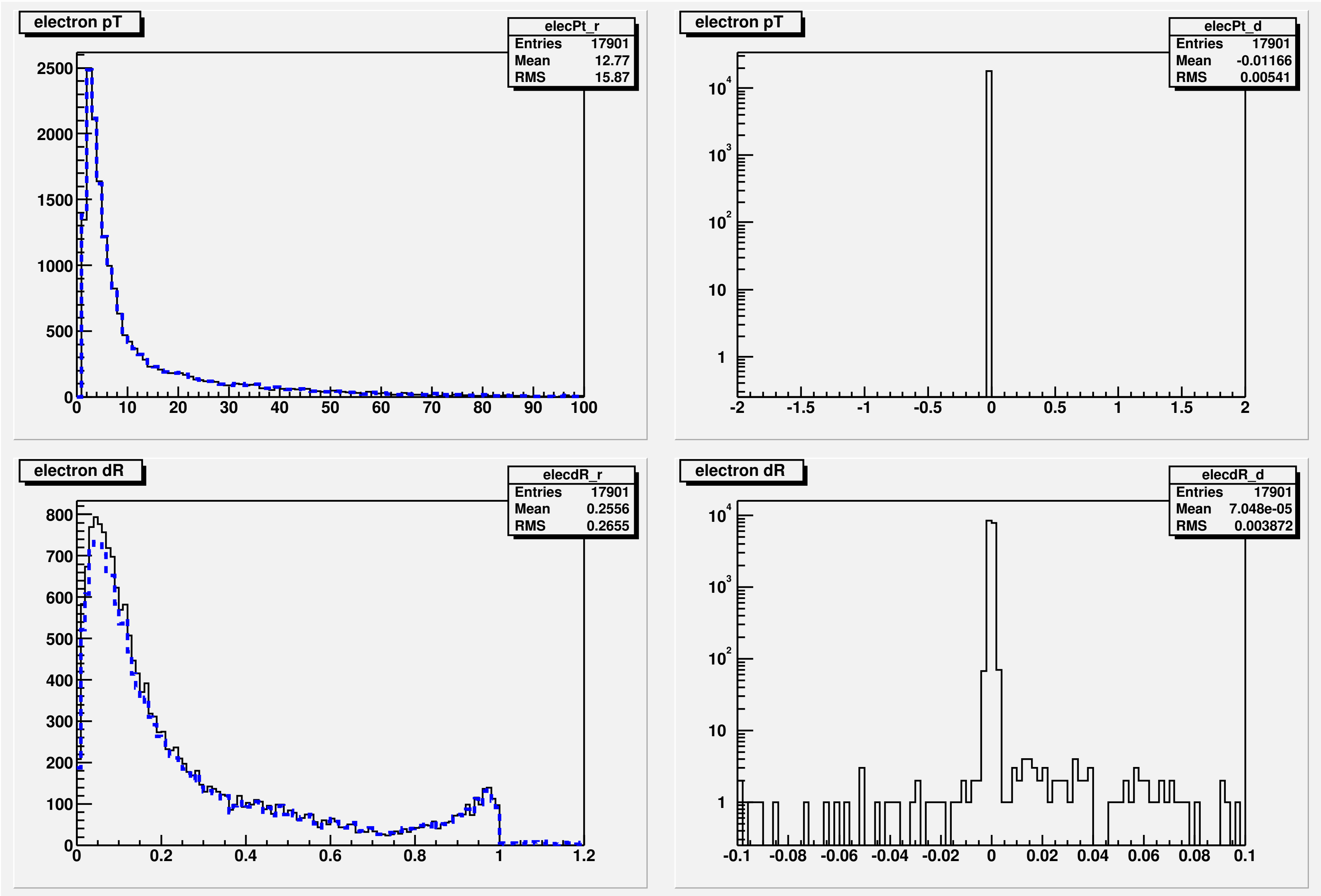
Limitations on # lepton tags / jet: robust solution possible, but haven't yet had the time to implement it

- Focus on problems rather than items addressed already
- Also look more closely at precision

eTag

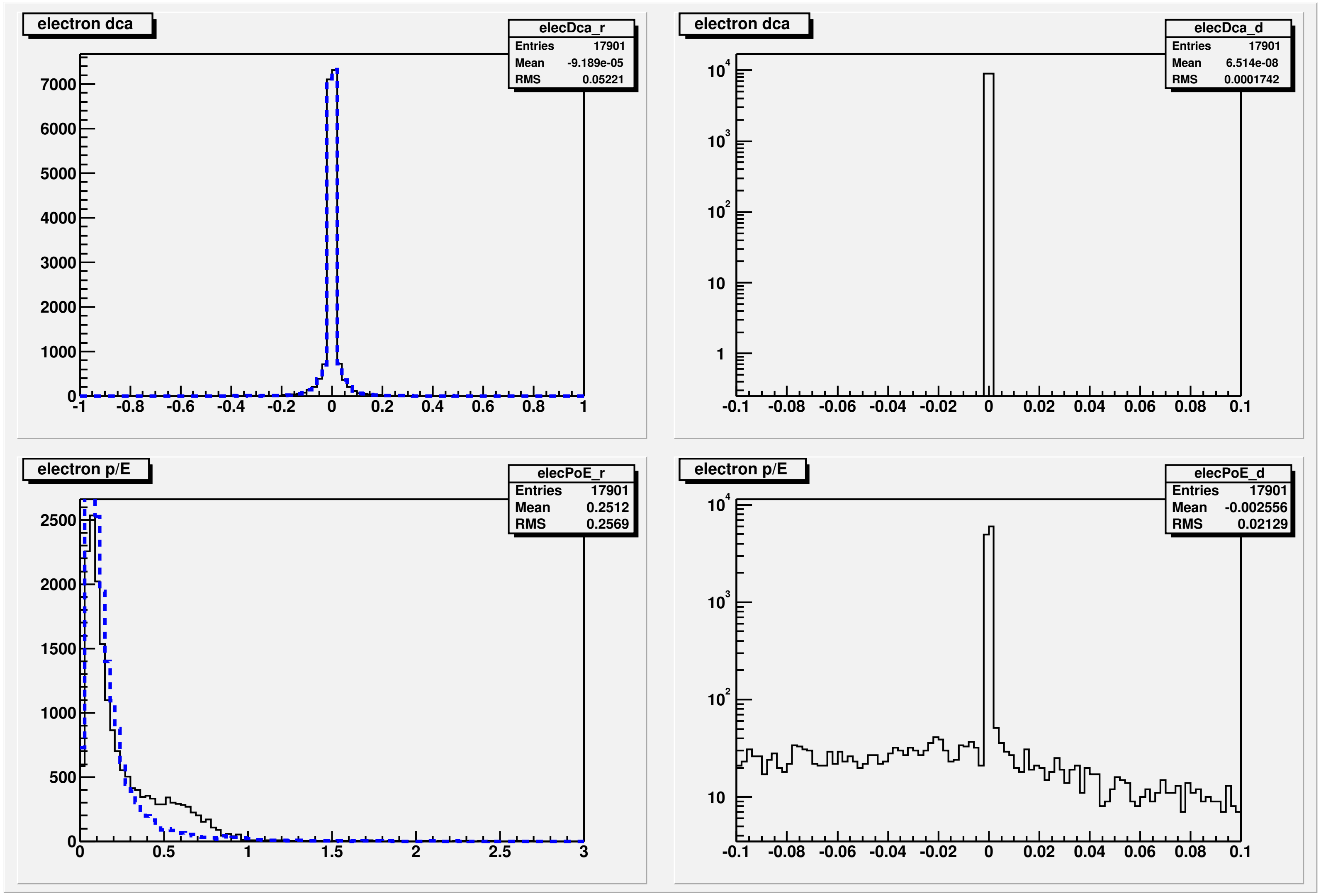

electron eta
elecEta_r
Entries 17901
Mean -0.0005075
RMS 0.8657
electron eta
elecEta_d
Entries 17901
Mean 3.718e-05
RMS 0.002932
electron phi
elecPhi_r
Entries 17901
Mean 3.124
RMS 1.825
electron phi
elecPhi_d
Entries 17901
Mean -1.143e-05
RMS 0.002011

eTag



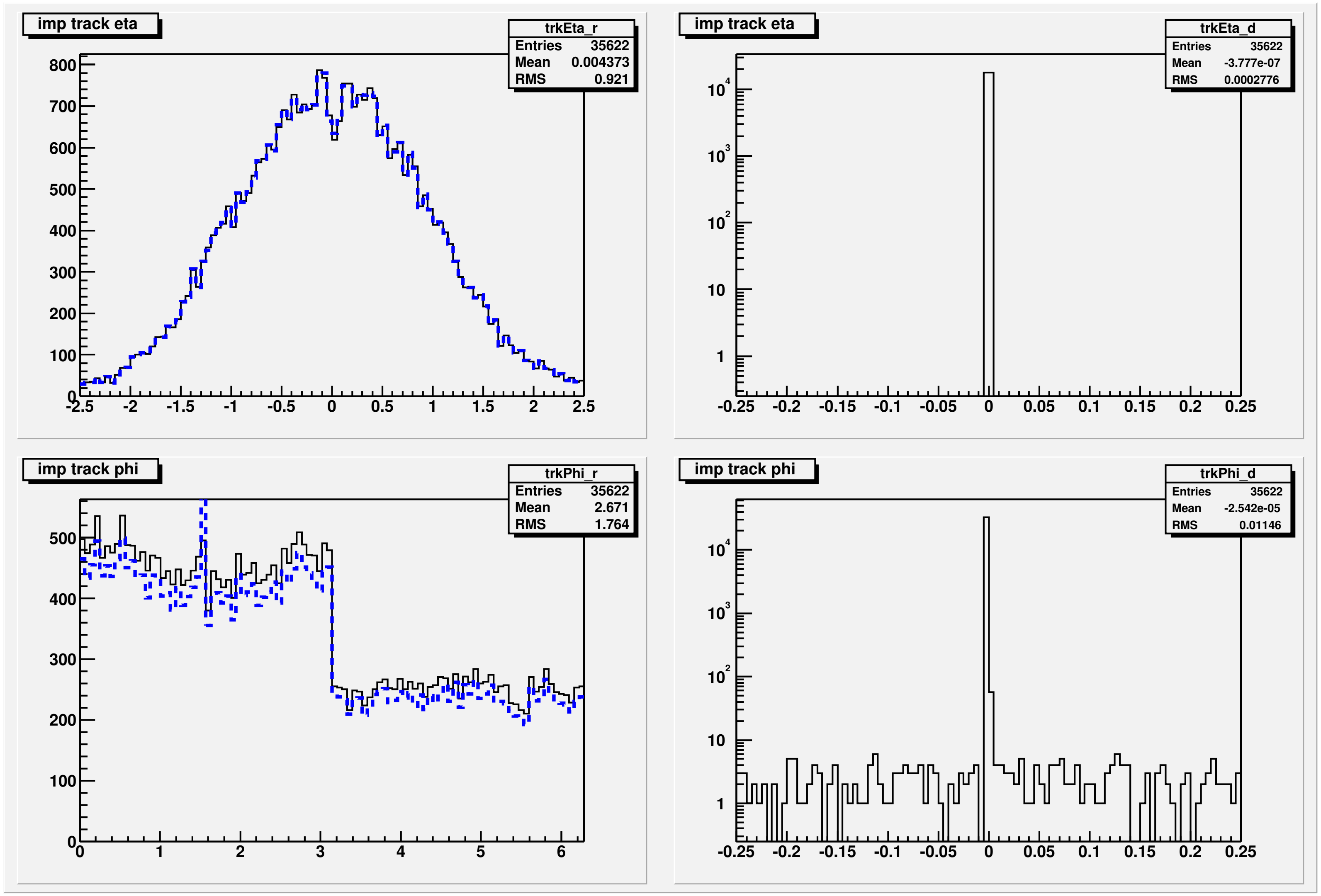
electron pT
elecPt_r
Entries 17901
Mean 12.77
RMS 15.87
0
500
1000
1500
2000
2500
0 10 20 30 40 50 60 70 80 90 100
electron pT
elecPt_d
Entries 17901
Mean -0.01166
RMS 0.00541
1
10
10^2
10^3
10^4
-2 -1.5 -1 -0.5 0 0.5 1 1.5 2
electron dR
elecdR_r
Entries 17901
Mean 0.2556
RMS 0.2655
0
100
200
300
400
500
600
700
800
0 0.2 0.4 0.6 0.8 1 1.2
electron dR
elecdR_d
Entries 17901
Mean 7.048e-05
RMS 0.003872
1
10
10^2
10^3
10^4
-0.1 -0.08 -0.06 -0.04 -0.02 0 0.02 0.04 0.06 0.08 0.1

eTag



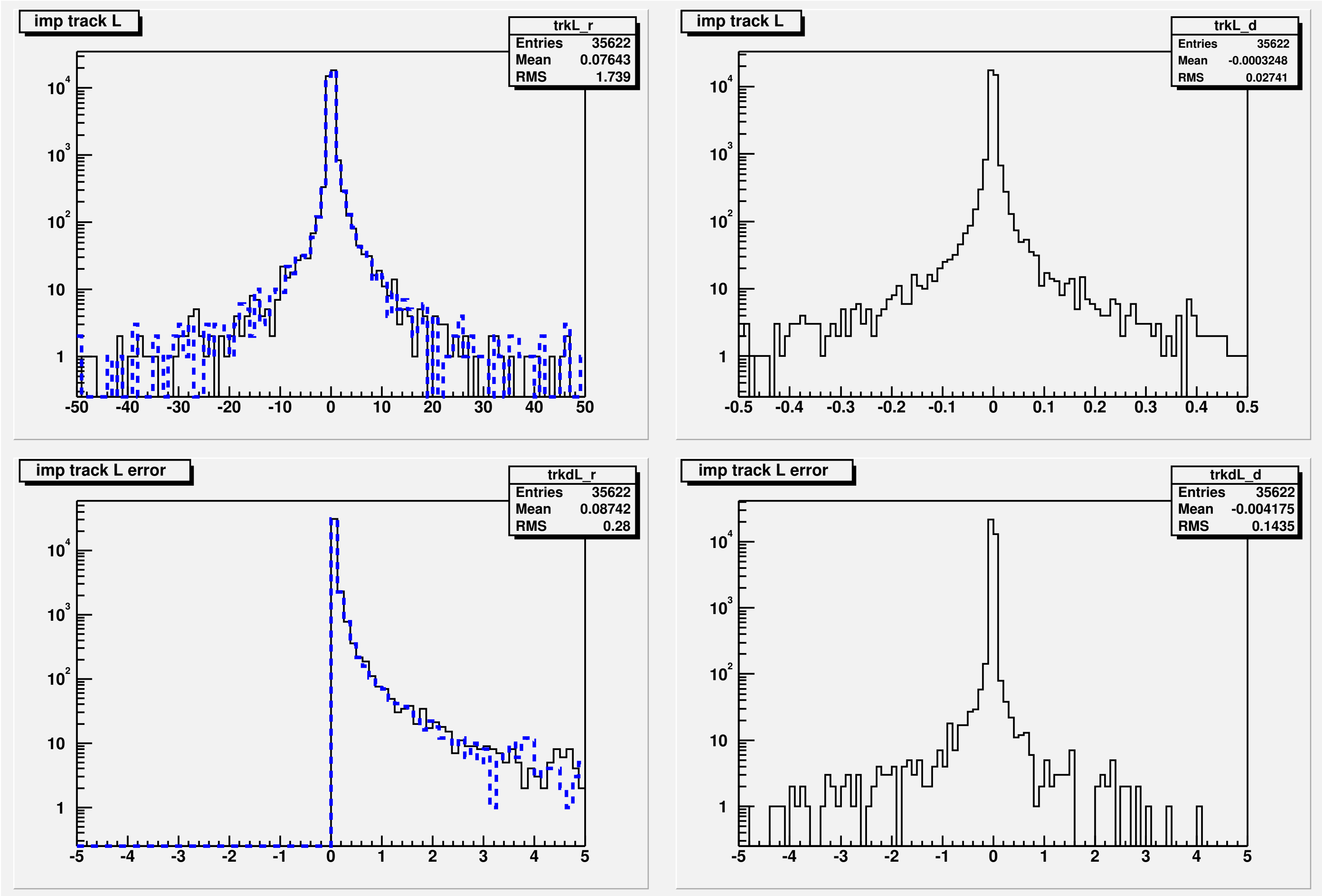
electron dca
elecDca_r
Entries 17901
Mean -9.189e-05
RMS 0.05221
electron dca
elecDca_d
Entries 17901
Mean 6.514e-08
RMS 0.0001742
electron p/E
elecPoE_r
Entries 17901
Mean 0.2512
RMS 0.2569
electron p/E
elecPoE_d
Entries 17901
Mean -0.002556
RMS 0.02129

impTag

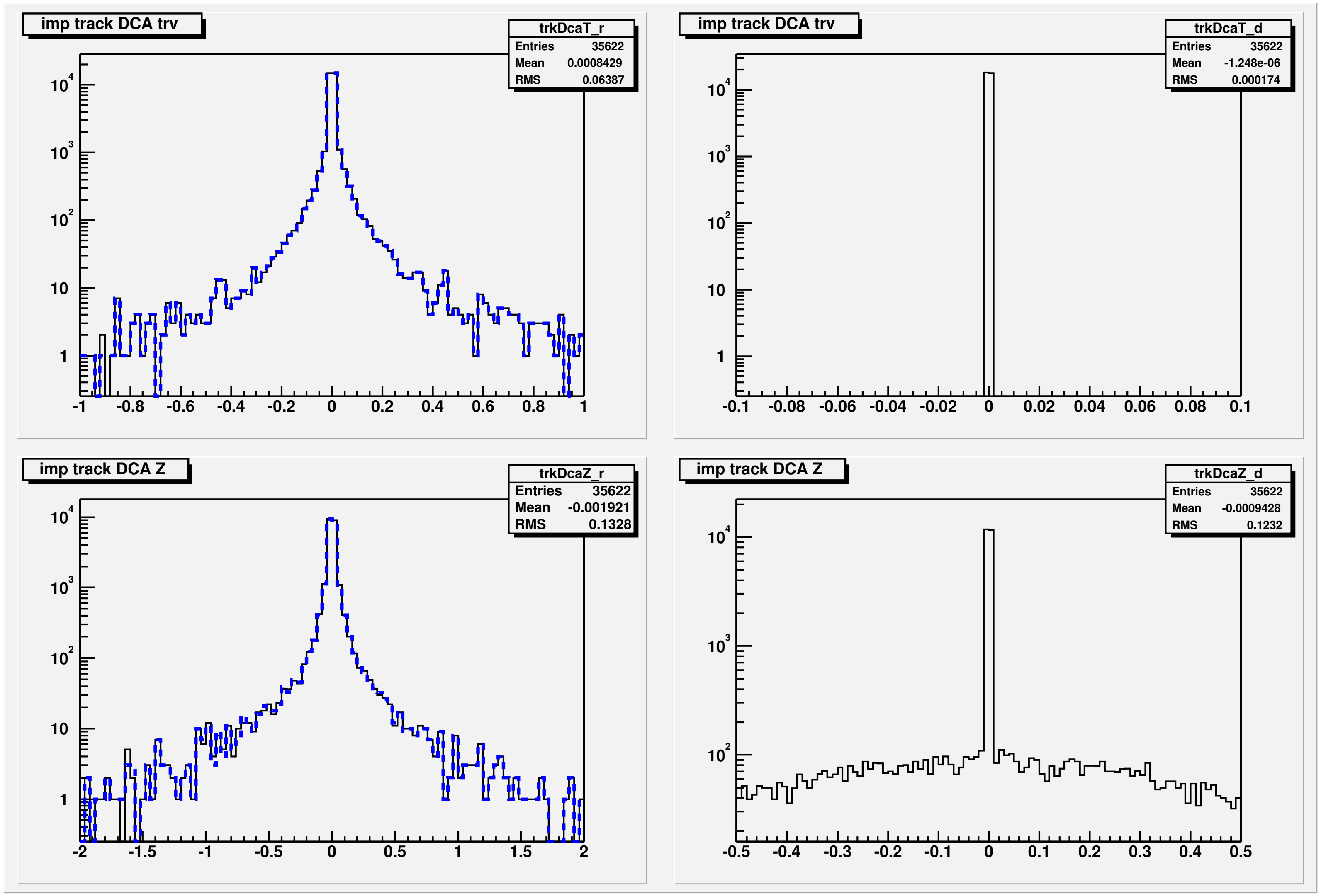


imp track eta
trkEta_r
Entries 35622
Mean 0.004373
RMS 0.921
imp track eta
trkEta_d
Entries 35622
Mean -3.777e-07
RMS 0.0002776
imp track phi
trkPhi_r
Entries 35622
Mean 2.671
RMS 1.764
imp track phi
trkPhi_d
Entries 35622
Mean -2.542e-05
RMS 0.01146

impTag

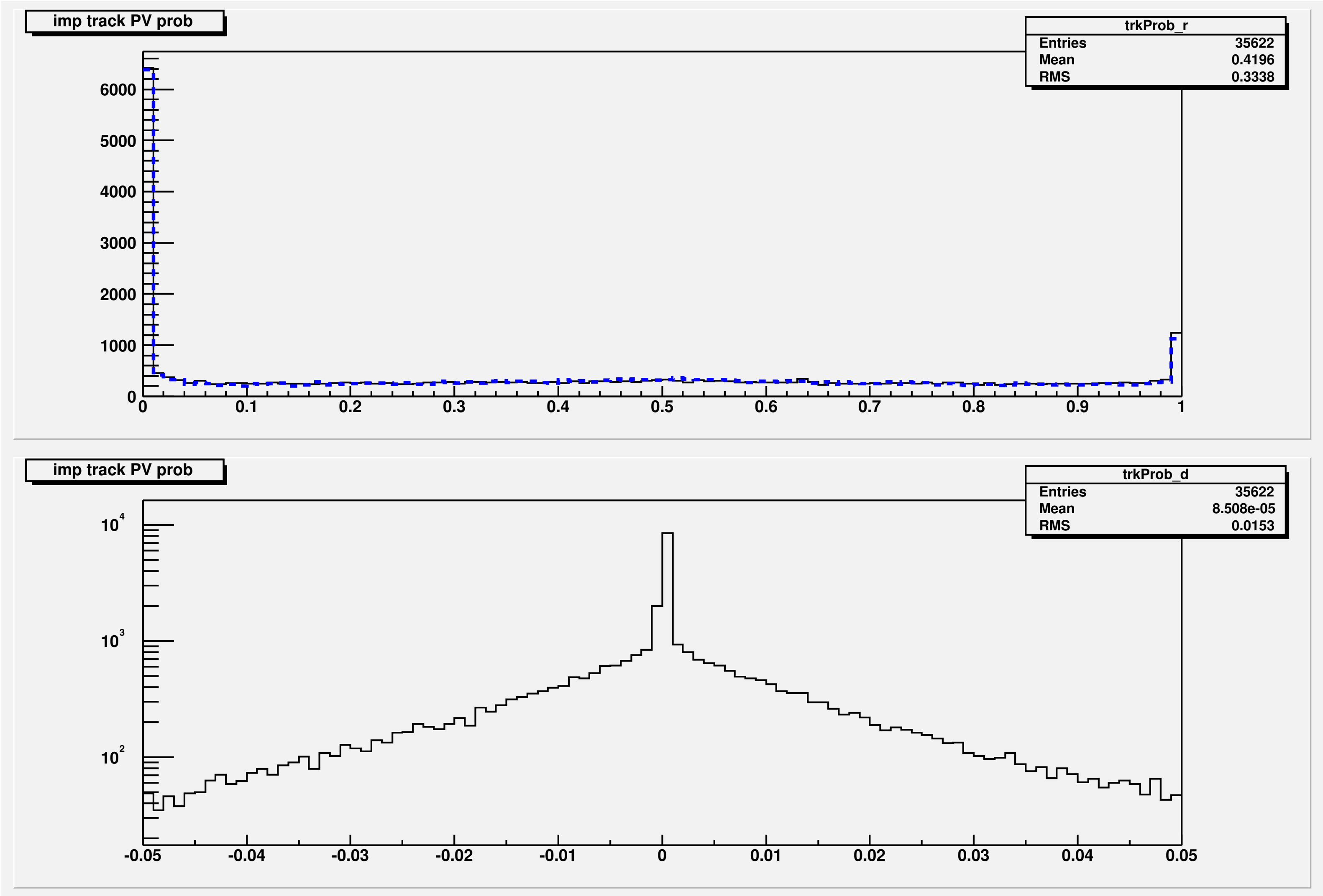

imp track L
trkL_r
Entries 35622
Mean 0.07643
RMS 1.739
imp track L
trkL_d
Entries 35622
Mean -0.0003248
RMS 0.02741
imp track L error
trkdL_r
Entries 35622
Mean 0.08742
RMS 0.28
imp track L error
trkdL_d
Entries 35622
Mean -0.004175
RMS 0.1435

impTag

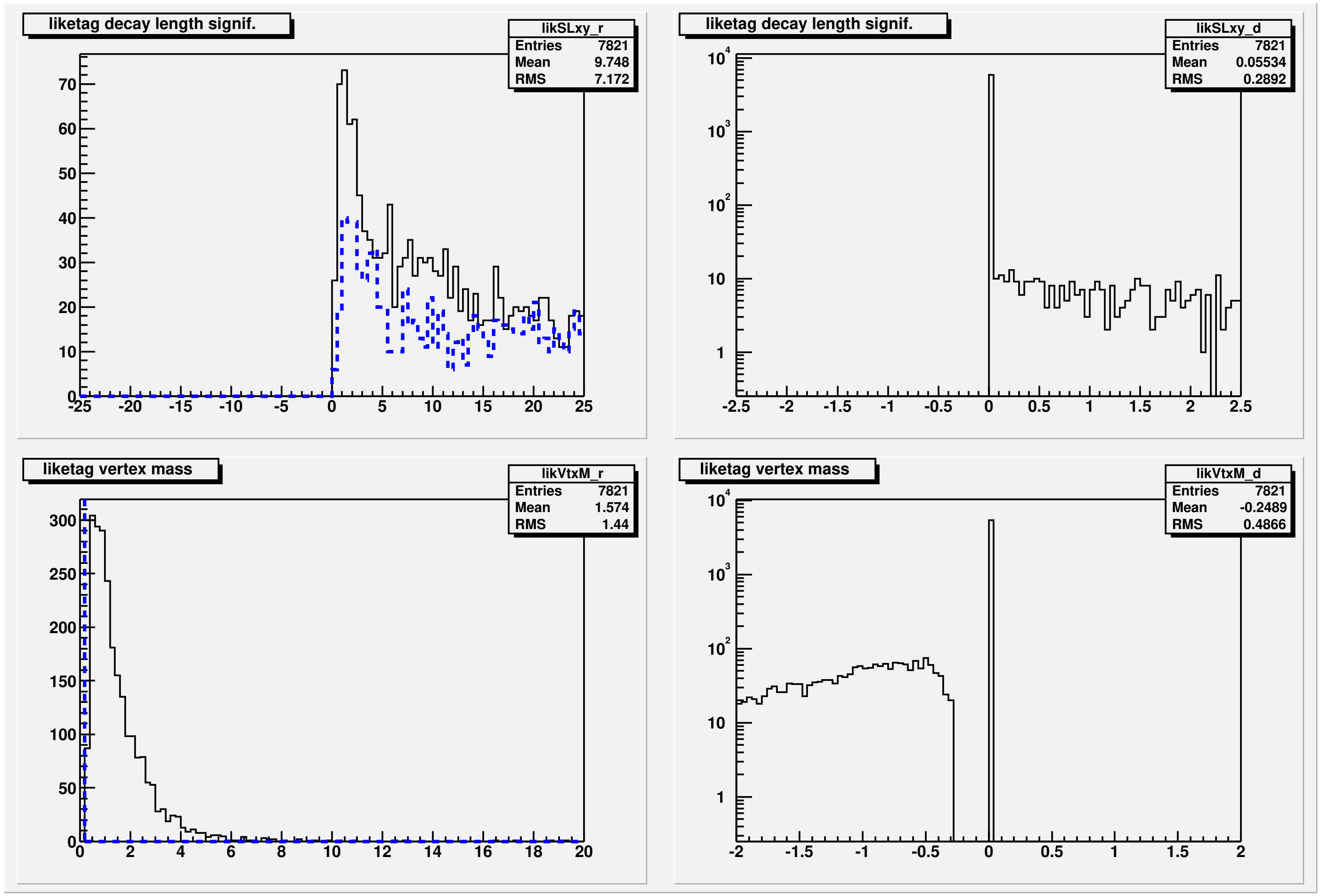


imp track DCA trv
trkDcaT_r
Entries 35622
Mean 0.0008429
RMS 0.06387
imp track DCA trv
trkDcaT_d
Entries 35622
Mean -1.248e-06
RMS 0.000174
imp track DCA Z
trkDcaZ_r
Entries 35622
Mean -0.001921
RMS 0.1328
imp track DCA Z
trkDcaZ_d
Entries 35622
Mean -0.0009428
RMS 0.1232

impTag


imp track PV prob
trkProb_r
Entries 35622
Mean 0.4196
RMS 0.3338
0 1000 2000 3000 4000 5000 6000
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1
imp track PV prob
trkProb_d
Entries 35622
Mean 8.508e-05
RMS 0.0153
10^2 10^3 10^4
-0.05 -0.04 -0.03 -0.02 -0.01 0 0.01 0.02 0.03 0.04 0.05

likeTag



liketag decay length signif.
likSLxy_r
Entries 7821
Mean 9.748
RMS 7.172
liketag decay length signif.
likSLxy_d
Entries 7821
Mean 0.05534
RMS 0.2892
liketag vertex mass
likVtxM_r
Entries 7821
Mean 1.574
RMS 1.44
liketag vertex mass
likVtxM_d
Entries 7821
Mean -0.2489
RMS 0.4866

Conclusions

Status:

- bcJet, vertex tag, NN tag Blocks OK
- Likelihood tag Block needs checking (presumably track $\leftrightarrow$ Vertex association)
- Electron tag variables: ΔR, p/E
- Impact parameter tag track variables: ϕ, DCA (z)

Plan of action:

- Implement proper way to deal with limitations on # lepton tags, tracks / `bcJet` (requires modifications to `thumbnail` as well as `bcjet_evt` packages)
- **Need this is also for track $\leftrightarrow$ Jet association** if we are ever to be able to run the impact parameter tag off the Thumbnail
- Insufficient precision in variables that would be needed for redoing impact parameter tag (will find out which)