More truth plots (First thoughts on cuts)

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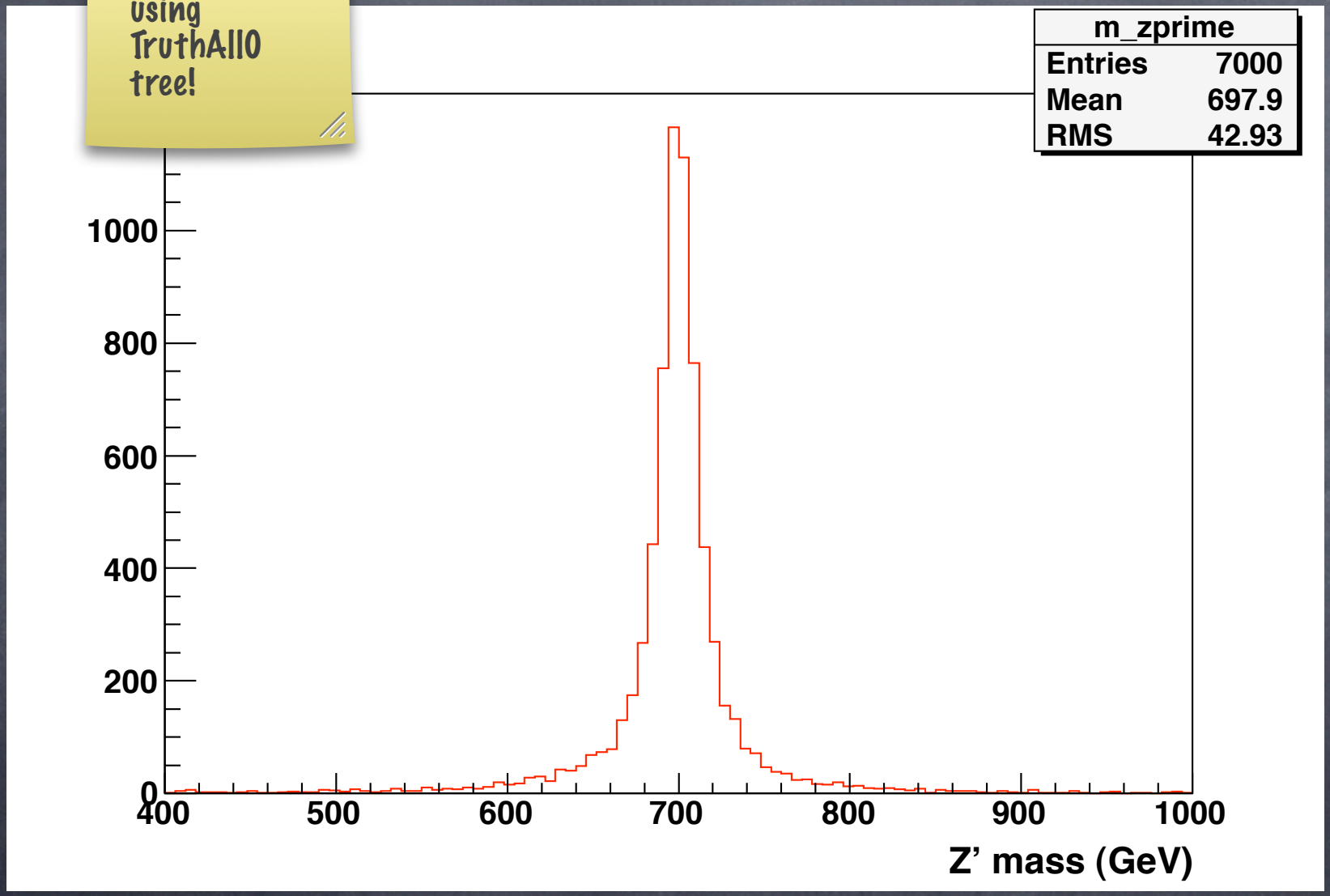
Simulation

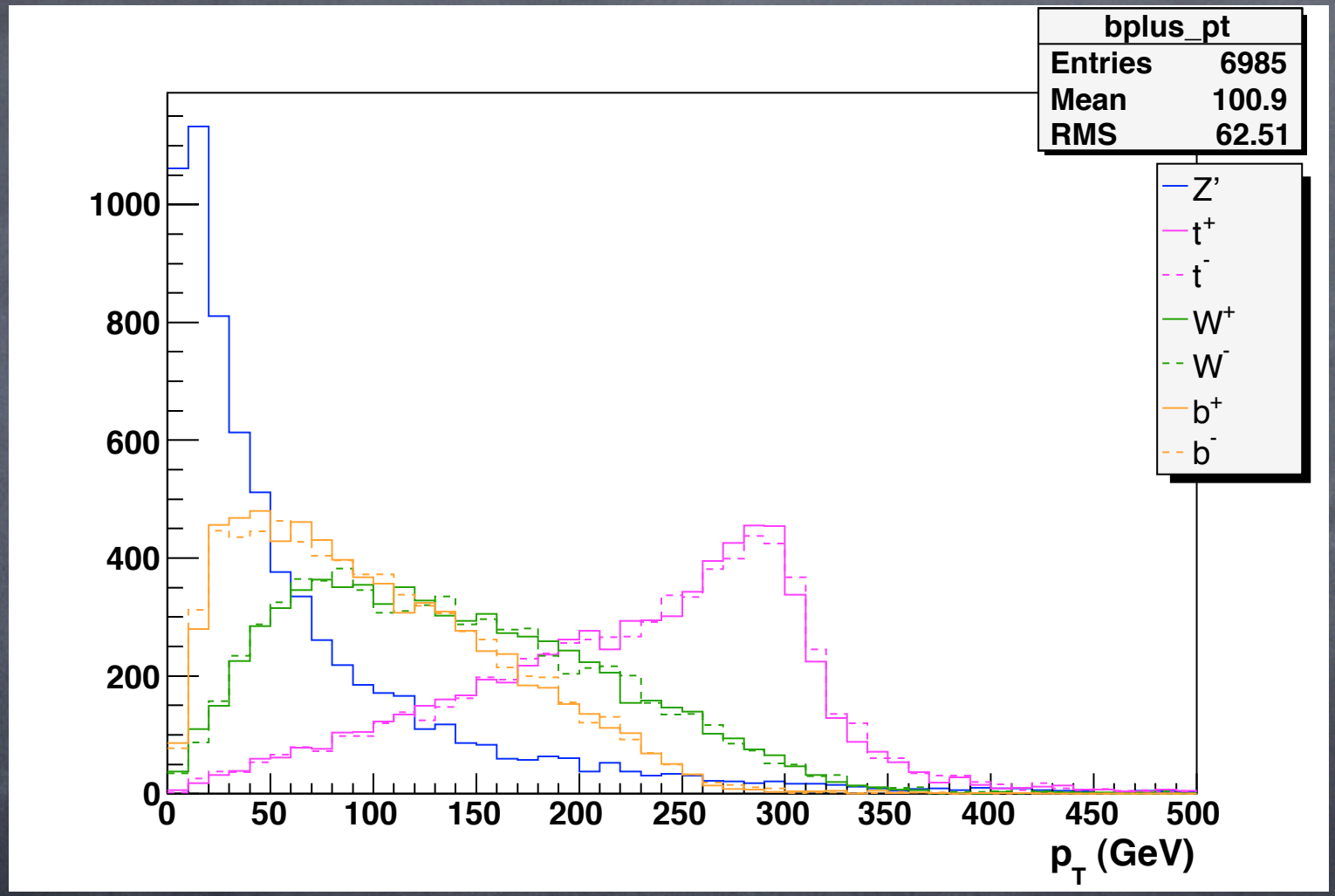
- Use MSUB 141: $ff \rightarrow \gamma/Z^0/Z'^0$
- Mass: Z' = 700 GeV, M_{top} = 175 GeV, M_W = 80.425 GeV
- All lepton+jets (50% electron, 50% muon)
- Did not exclude decays correctly (should be -1, not 0), but this should only change width, cross-section
- W+ decays leptonically, W- hadronically
- I'm using a sample of 7000 (on my castor dir)

Z' mass

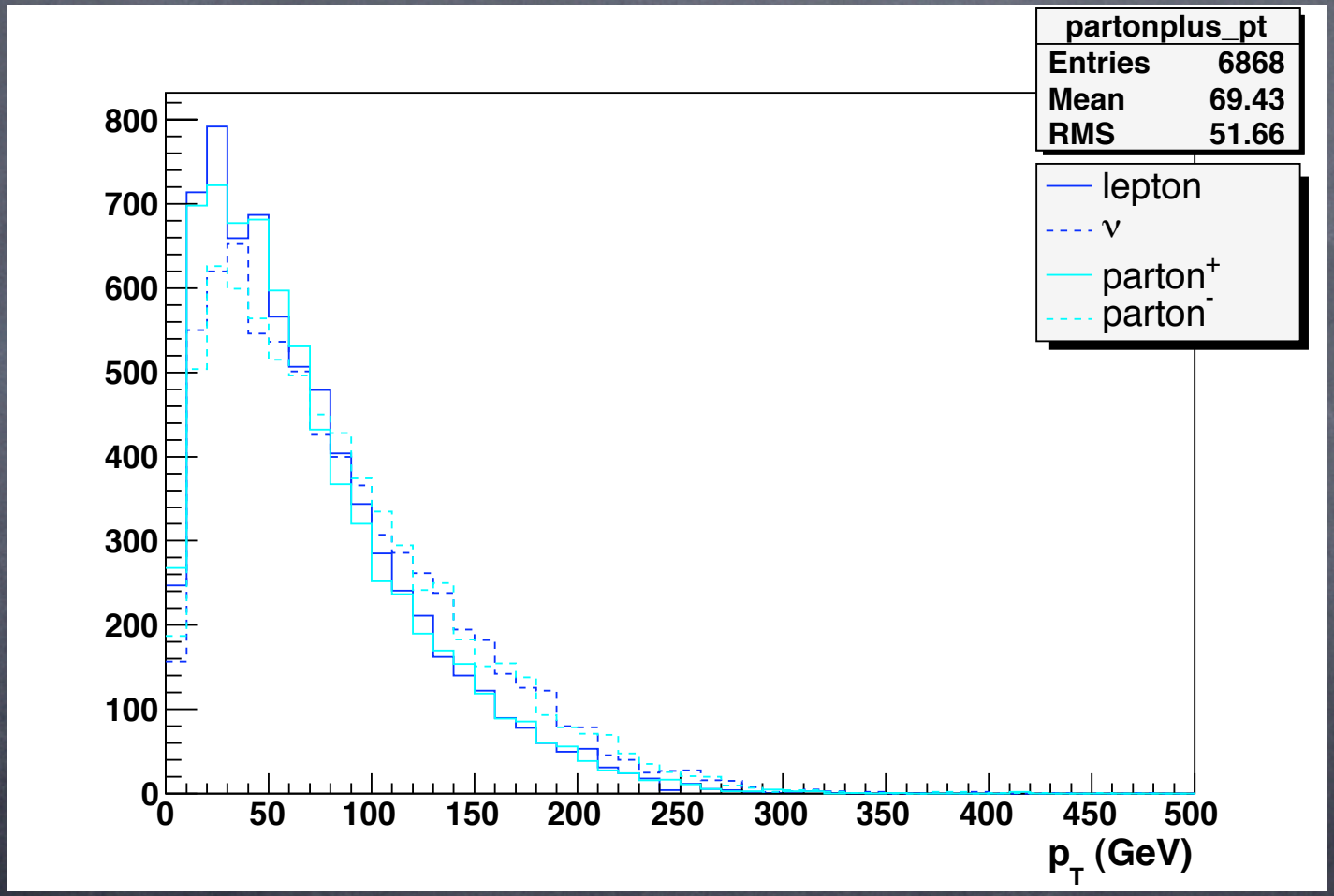
Now we're using TruthAll0 tree!



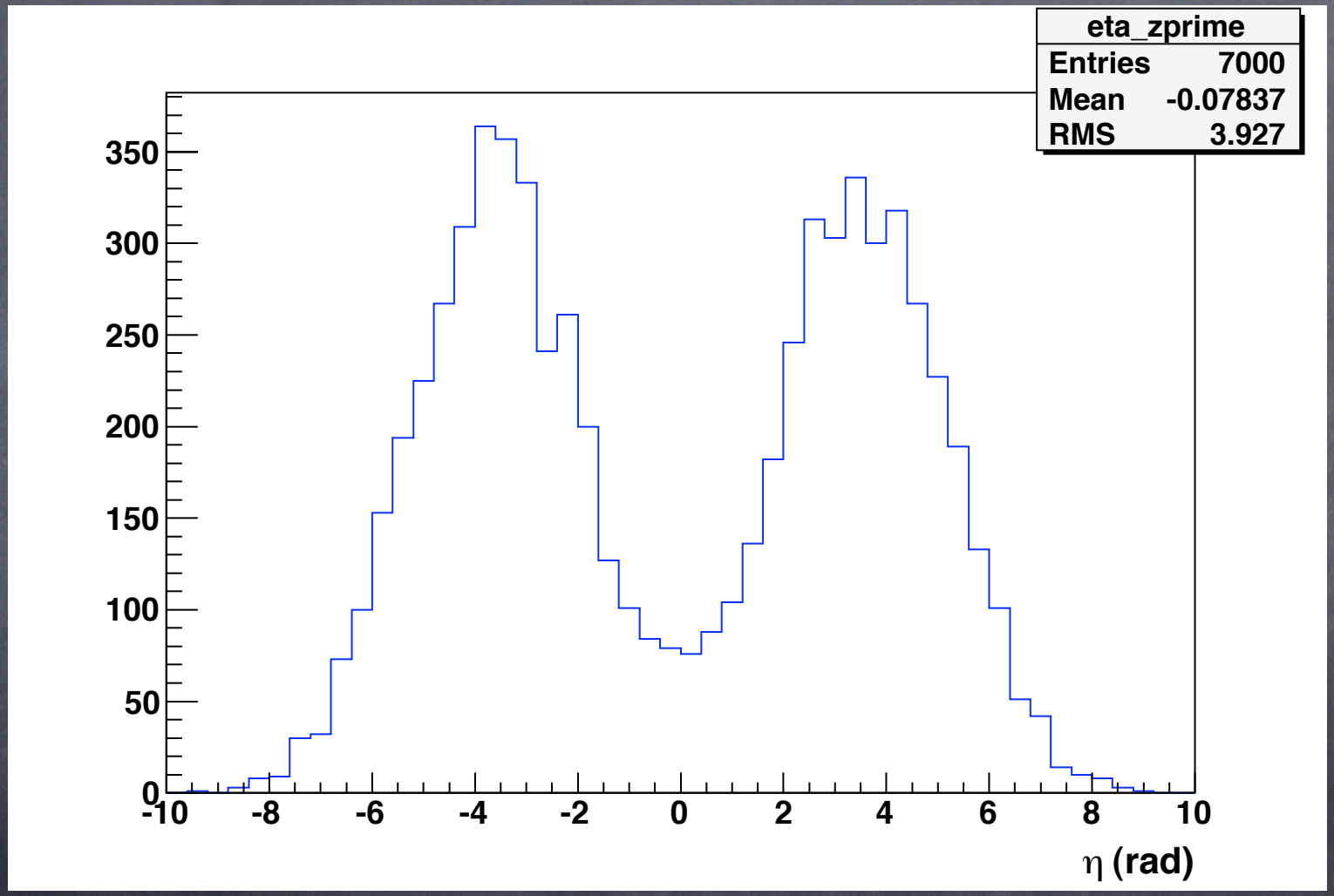
p_T distributions



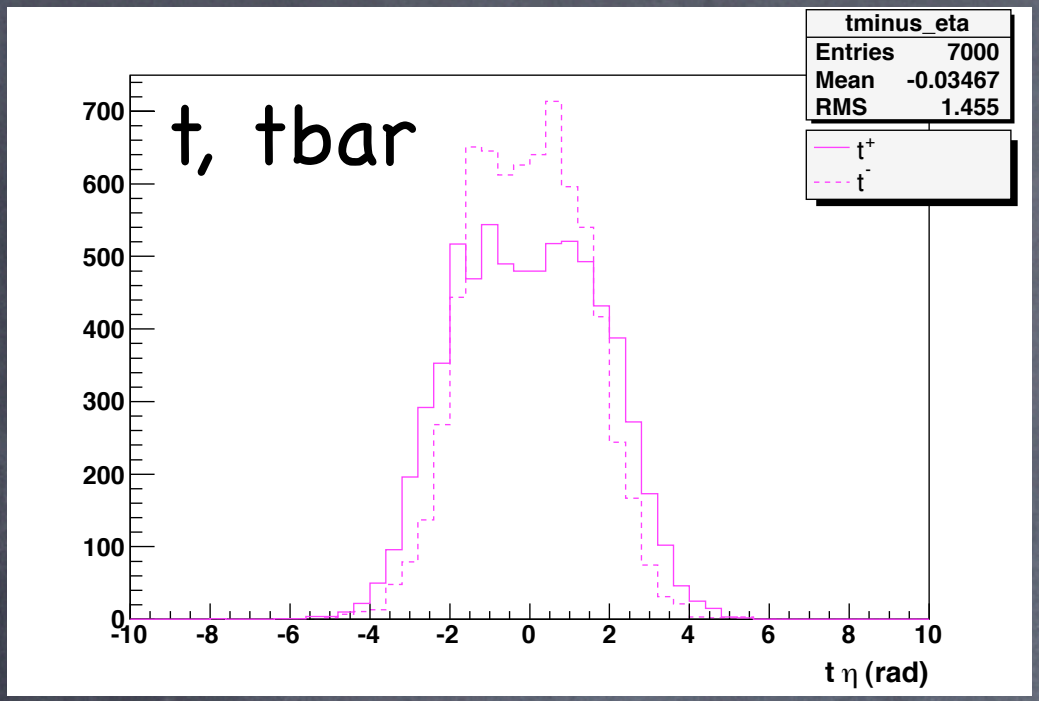
Lepton & Parton p_T distributions

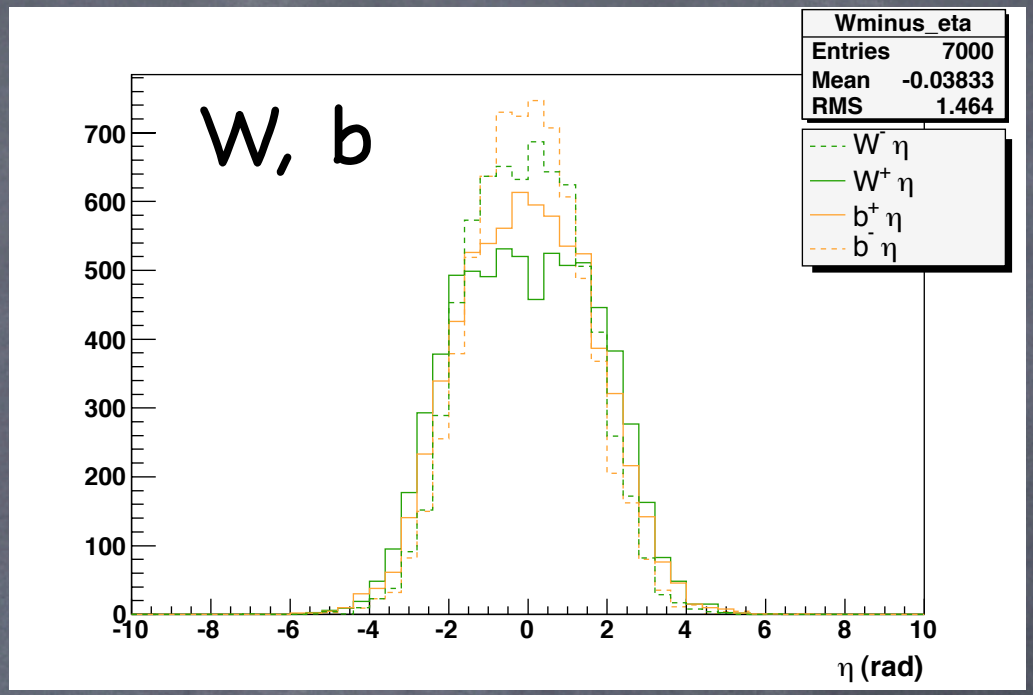


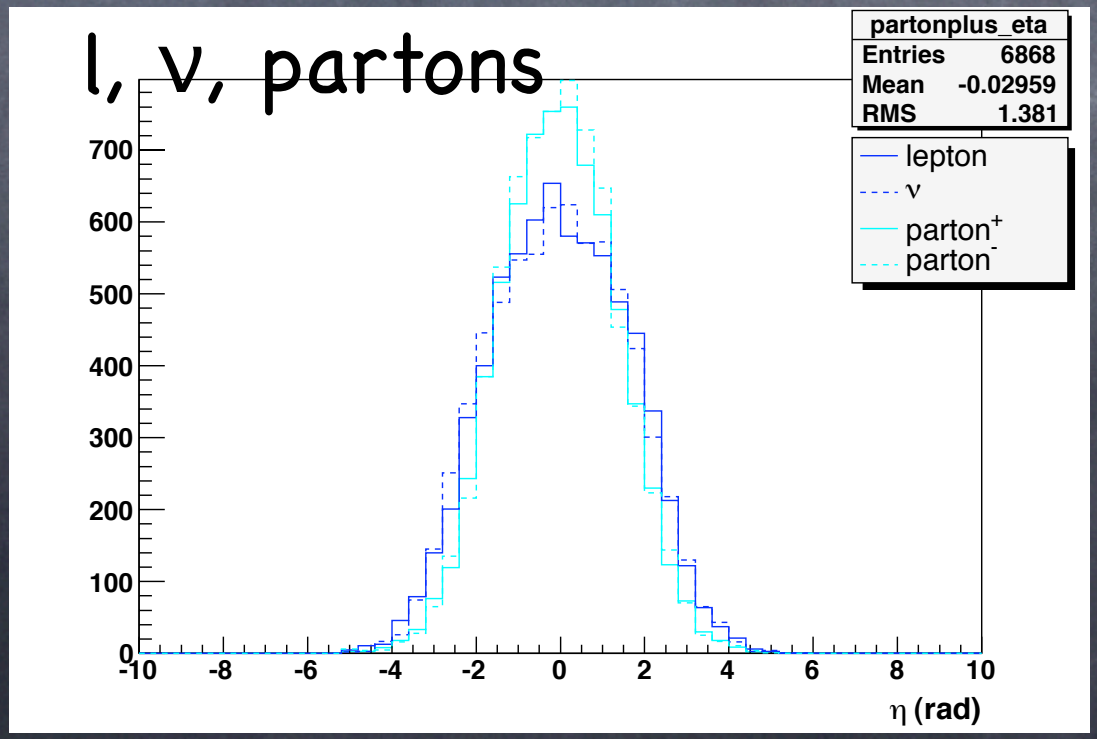
Z′ pseudorapidity



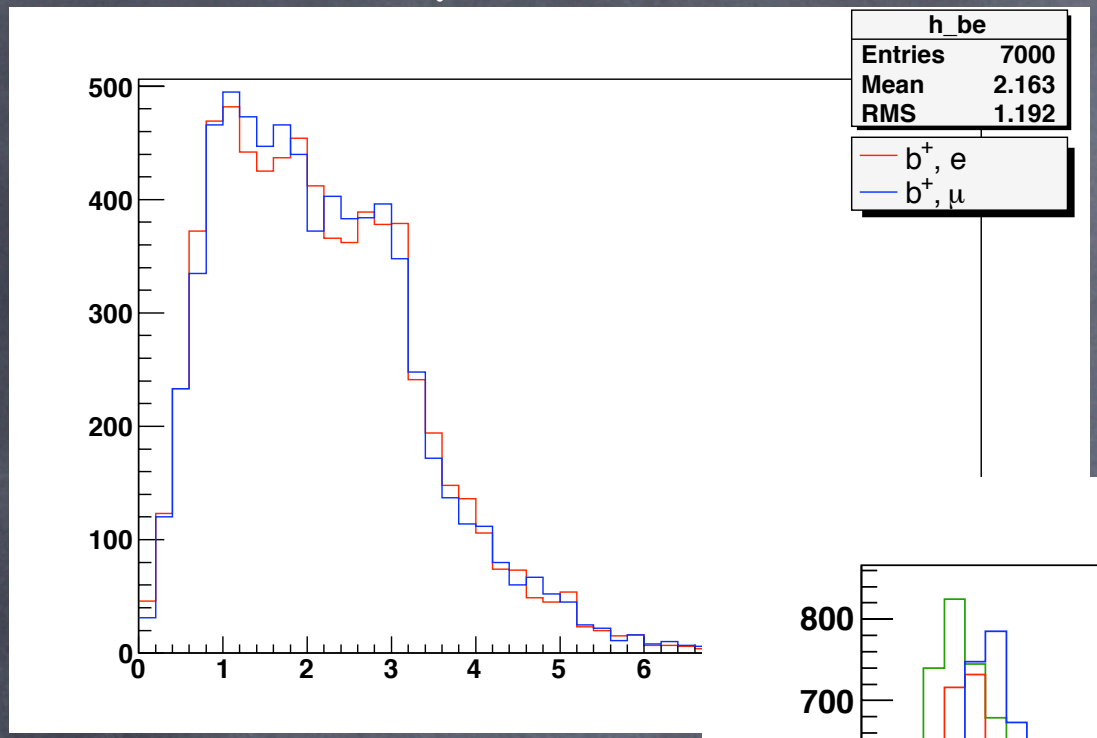
Pseudorapidity





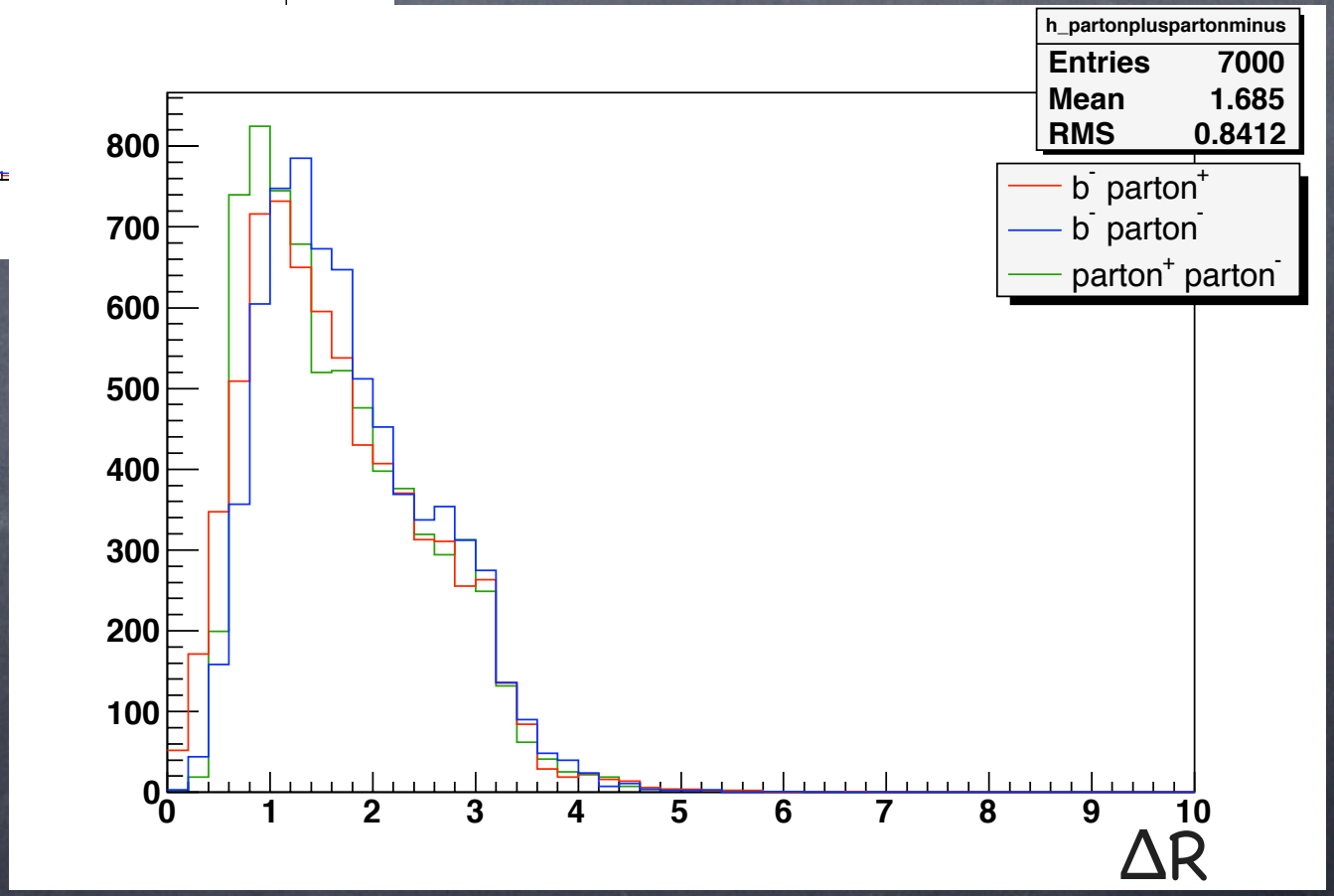


b-leptons



ΔR

b-parton1-parton2



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

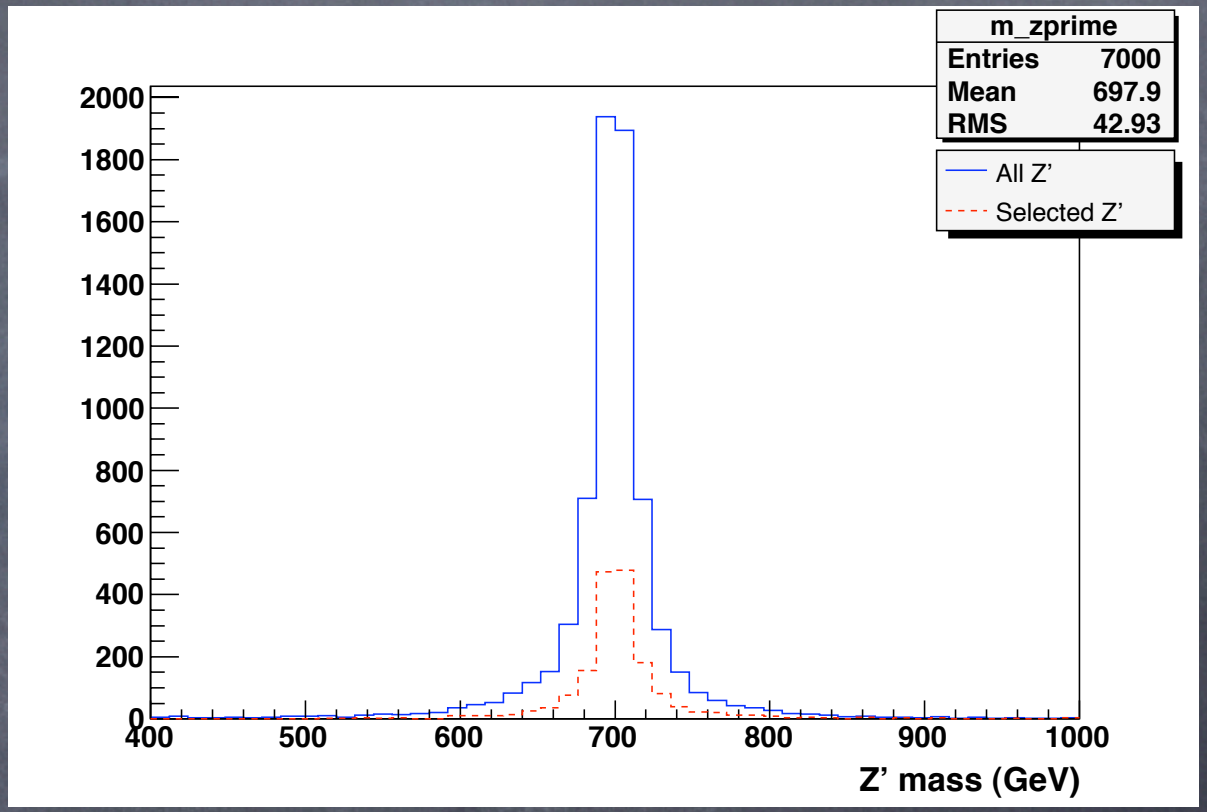
Toy Analysis

(cuts from Andreas)

- 20 GeV lepton
- 20 GeV missing E_T
- 4 partons with $p_T > 40$ GeV
  - Alternative: 4th jet with $p_T > 20$ GeV

Toy Analysis

- lepton: 86%
- "missing E_T": 90%
- b-jet: 67%
- light-jet: 43%
  - 20 GeV: 76%
- 4 jet: 26%
- TOTAL: 25% (46%)

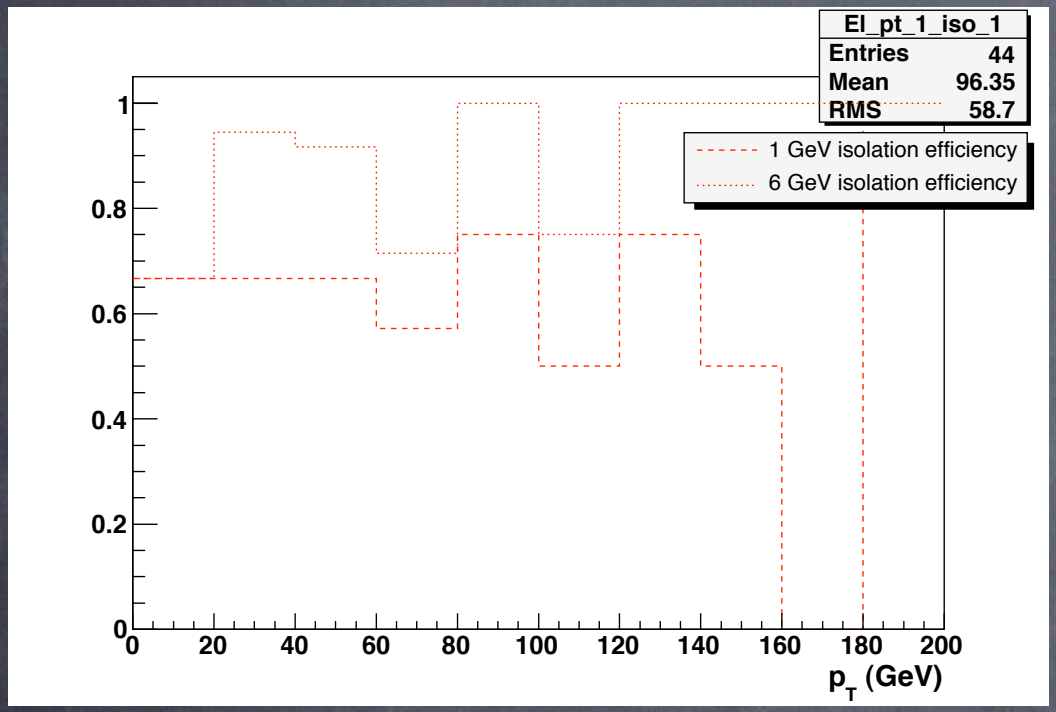


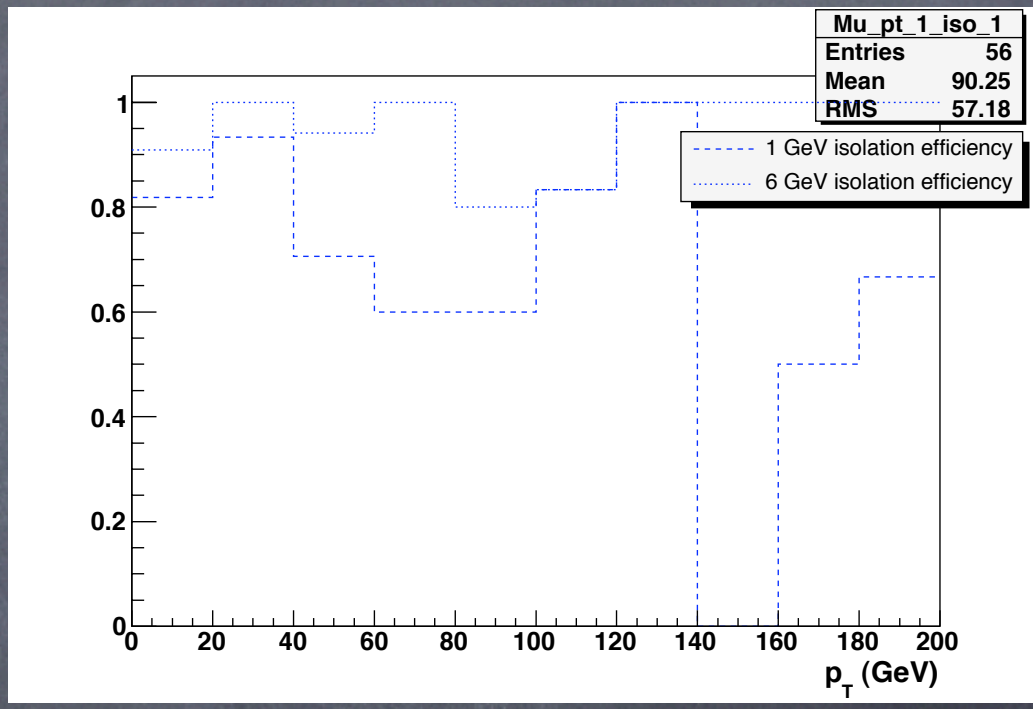
Next steps

- Repeat with m=1, 1.5 TeV
- Repeat with top sample
- Start playing with reconstructed data

Homework from last time

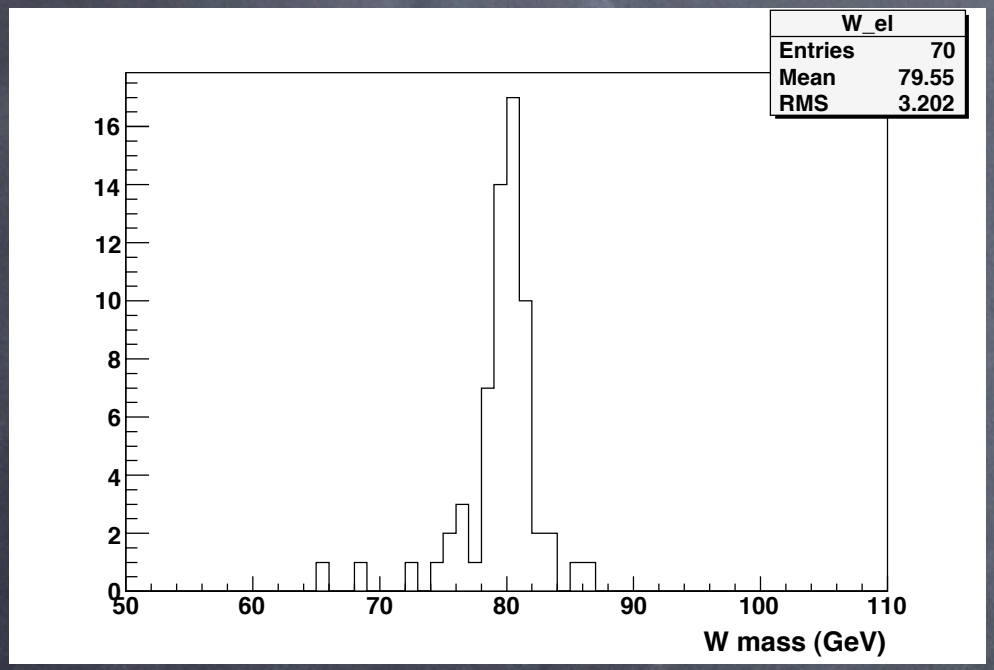
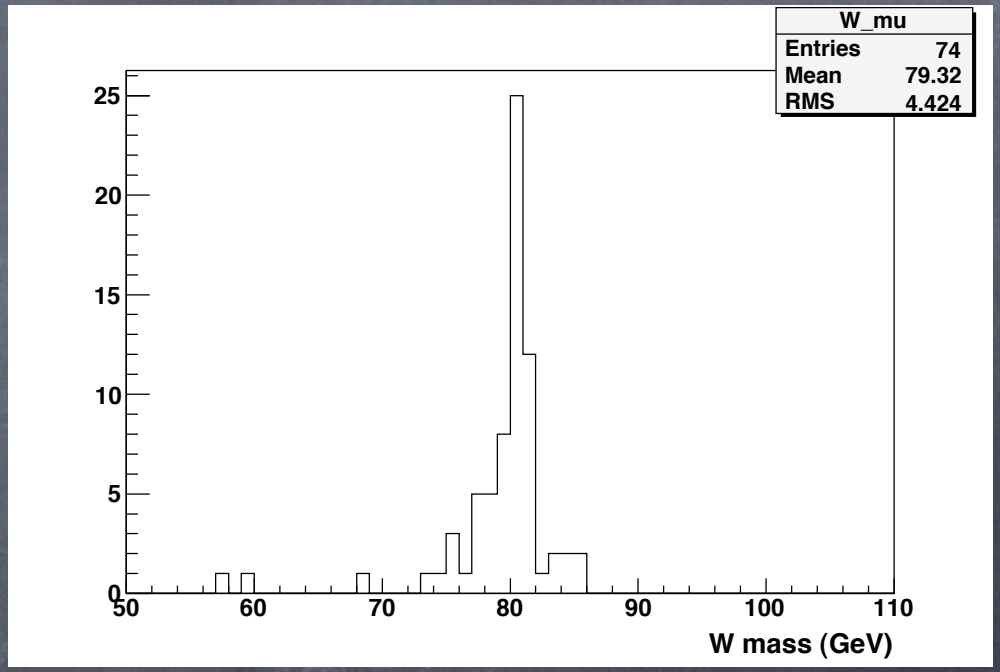
(poor statistics)


El_pt_1_iso_1
Entries 44
Mean 96.35
RMS 58.7
1 GeV isolation efficiency
6 GeV isolation efficiency
0
0.2
0.4
0.6
0.8
1
0 20 40 60 80 100 120 140 160 180 200
p_T (GeV)


Mu_pt_1_iso_1
Entries 56
Mean 90.25
RMS 57.18
1 GeV isolation efficiency
6 GeV isolation efficiency
0
0.2
0.4
0.6
0.8
1
0 20 40 60 80 100 120 140 160 180 200
p_T (GeV)

W mass reconstruction

electron



muon