Z(ee)+Jets update

→ Data vs MC comparisons

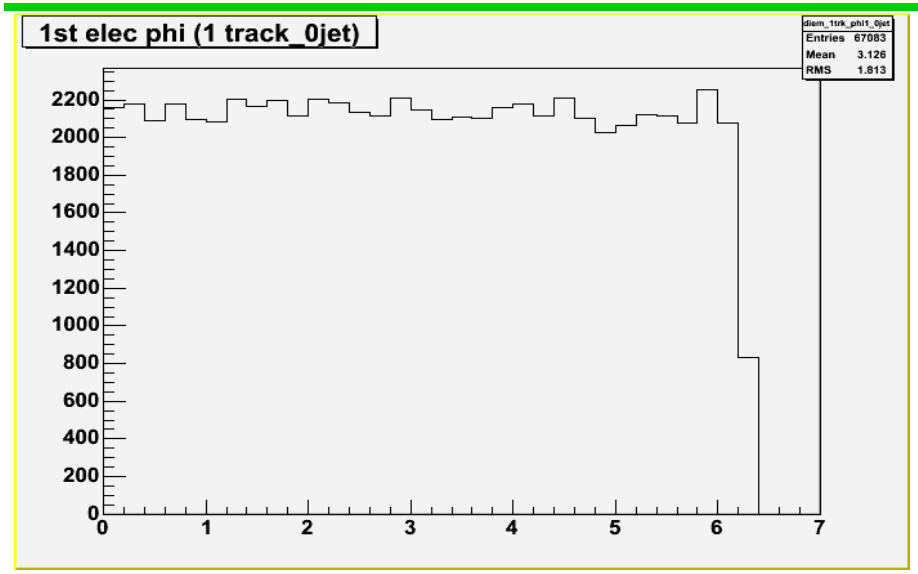
Samples

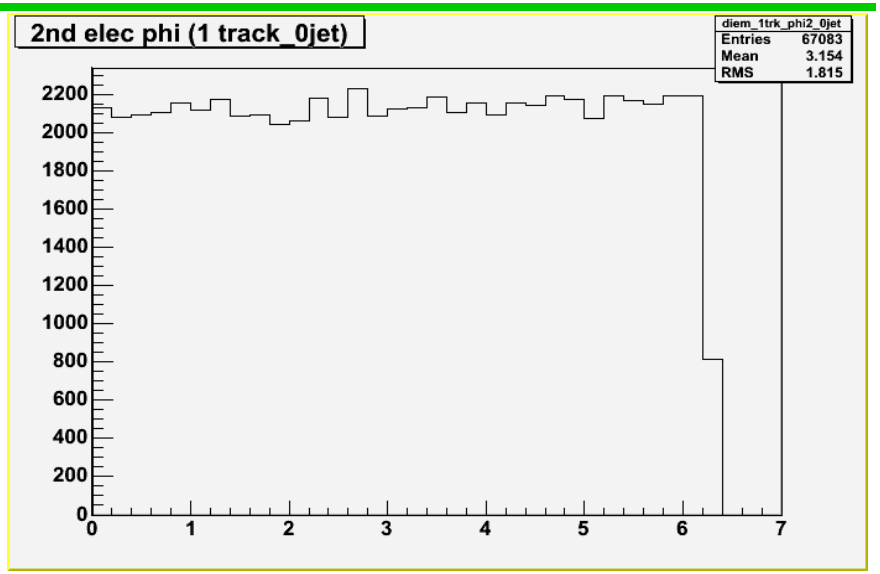
- **Data**:
  - EM1TRK skim
  - Single EM triggers
  - Run range: 20 April 2002 - 28 June 2004 (Runs 151,817 - 194,566)
  - Rejecting bad runs (CAL, SMT, CFT, Jet/Met, Lumi)
  - $323pb^{-1}$
  - No T42 applied
  - Jetcorr v5.0
  - Processed with ATHENA (v01-05-02)
- **MC:**
  - Z/Gamma* > e^+e^- +X: 400k Pythia
  - Zj->eej: 150k Alp+Pythia
  - Zjj->eejj: 180k Alp+Pythia
  - Zjjj->eejjj: ...
  - Processed with ATHENA (v01-05-02)

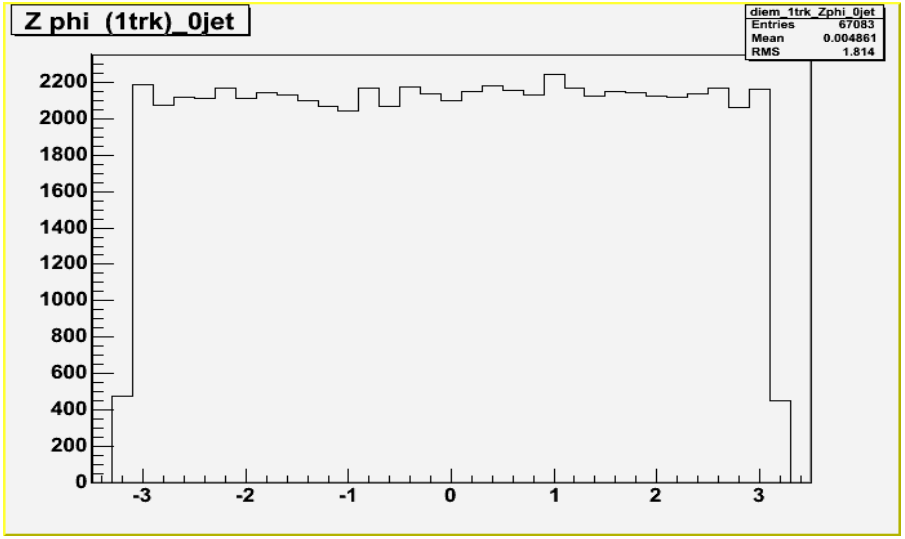
Selection Criteria

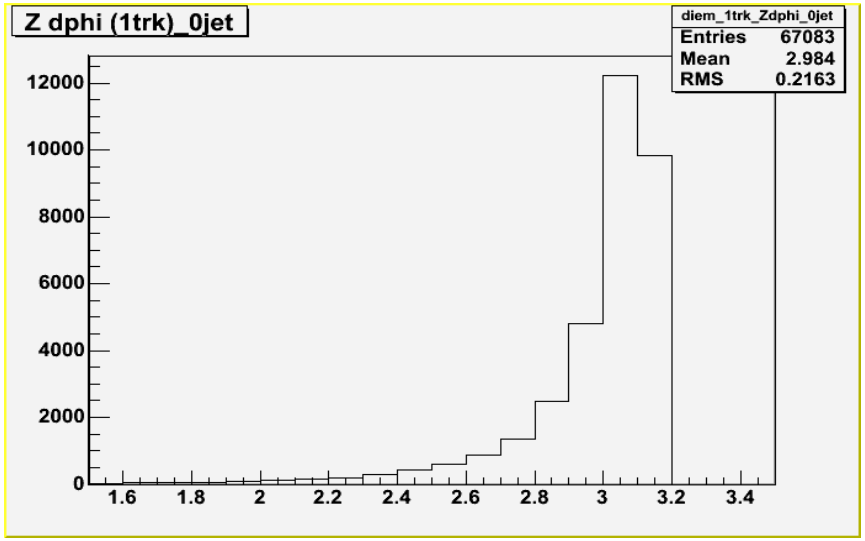
- Removing bad runs/LBNs & dupli events
- PVX cut: |z|<60cm
- Using unprescaled single EM triggers
- Electron selection:
  - |ID|=10,11
  - EMF>0.9
  - Iso<0.15
  - HMx(7)<12
  - p_T>25GeV
  - Including phi cracks
- Z selection:
  - 75GeV < M_{ee} < 105GeV
  - At least one trackmatched electron
  - At least one electron needs to fire the trigger
- Jet selection:
  - 0.05 < EMF < 0.95
  - HotF < 10
  - N90>1
  - CHF<0.4
  - L1conf
  - JES corrected p_T>20GeV
  - |eta|<2.5
  - Removal of jets overlapping with electrons from Z within dR of 0.4

Phi distributions in MC

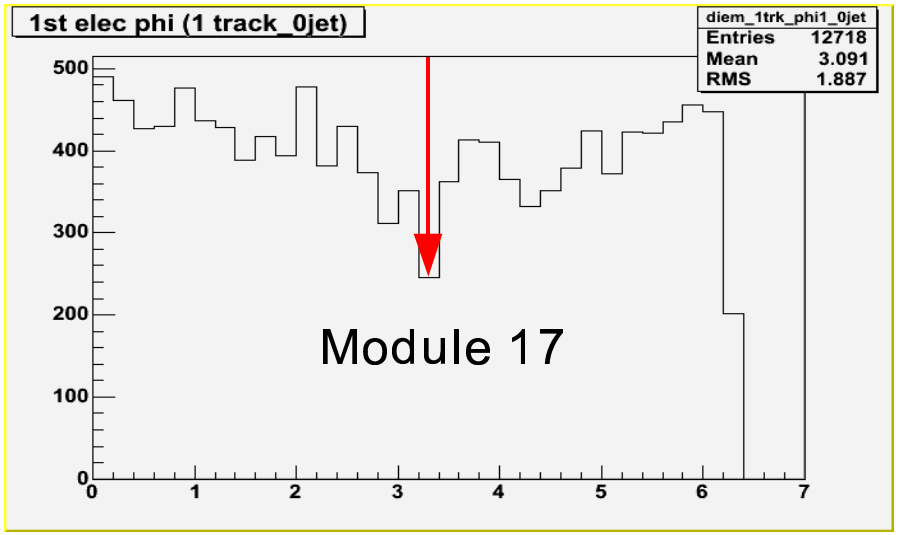


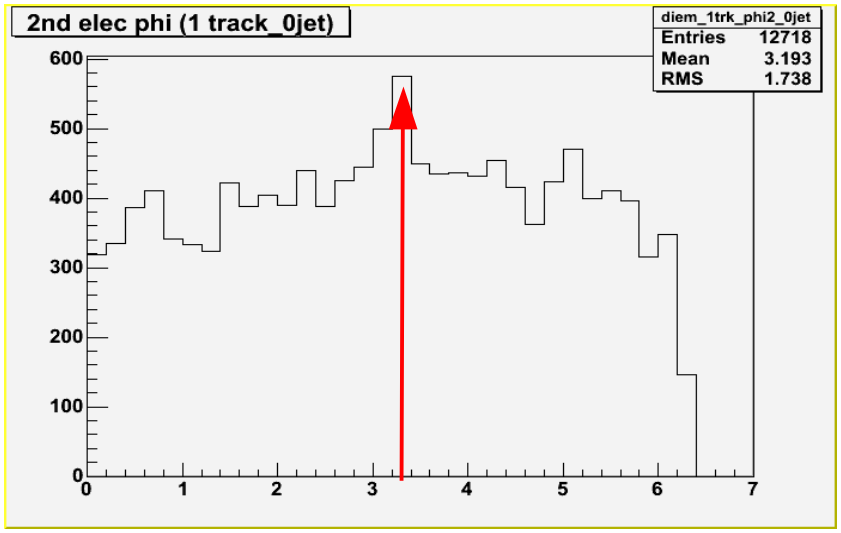


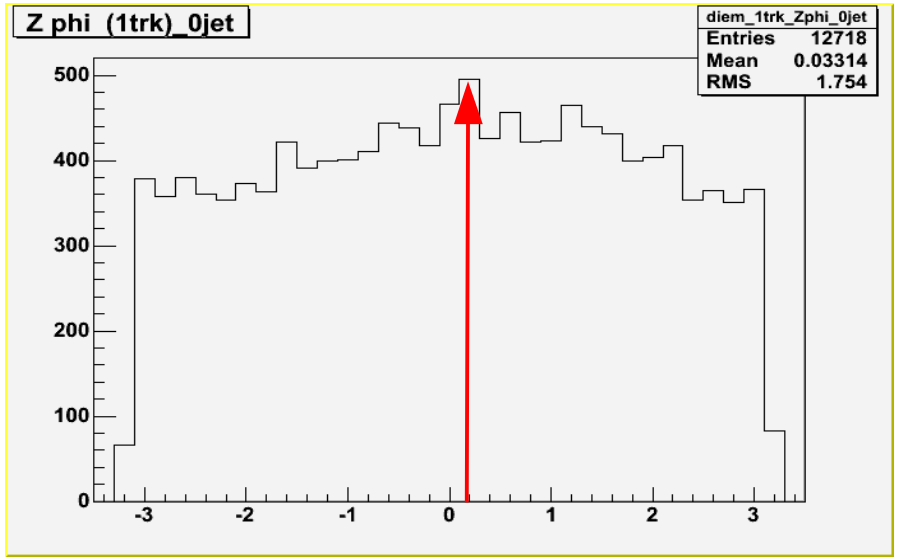


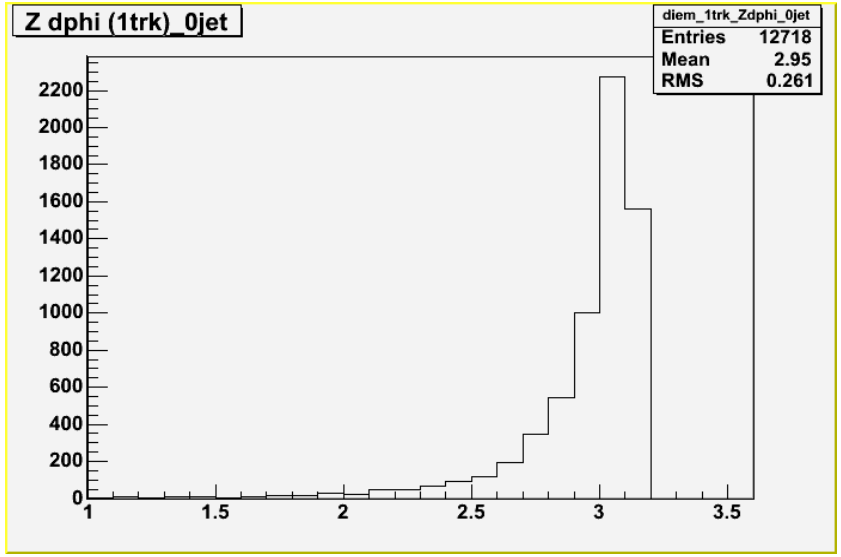


Phi distributions in data

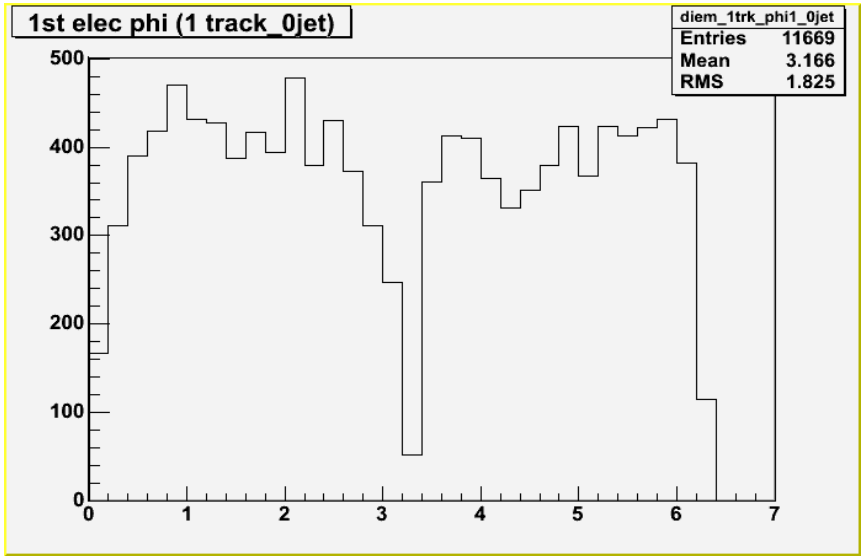


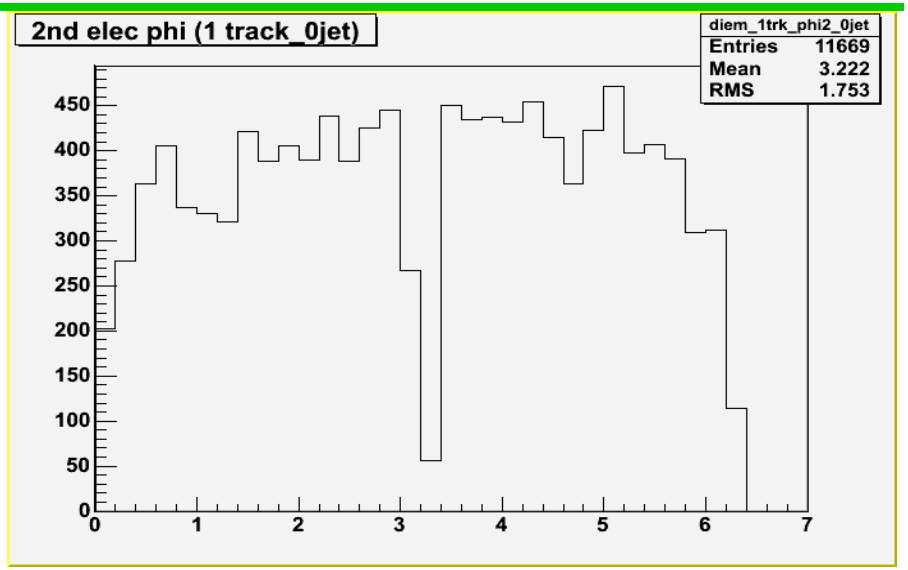






Phi distributions in data (w/o Module 17)



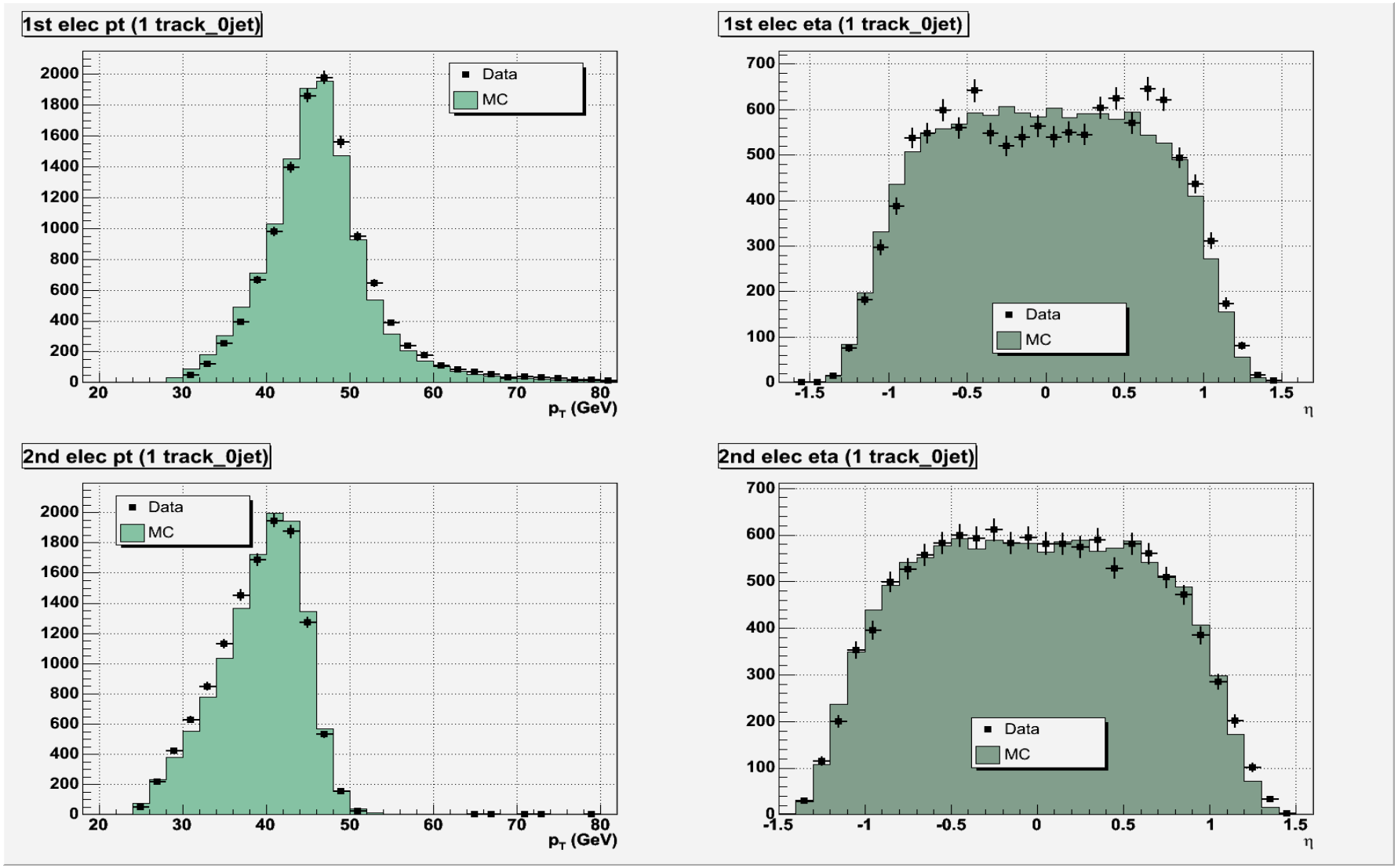


- removing module 17 improves phi distributions
- still some secondary effects pressent (see Electroweak Group's CAL map!)

Data vs MC

- MC: smearing: $pT' = pT\, c\, [1+Gauss(0,f)]$ $c = 1.003$, $f = 0.042$
- Data: background subtracted based on sidebands (40-75GeV & 105-140GeV)
- Normalization between data and MC wrt area

Data vs MC


1st elec pt (1 track_0jet)
Data
MC
p_T (GeV)
1st elec eta (1 track_0jet)
Data
MC
η
2nd elec pt (1 track_0jet)
Data
MC
p_T (GeV)
2nd elec eta (1 track_0jet)
Data
MC
η

todo

- Further investigate eta features (hot cells, trigger effect, ... ?)
- Fix MC by ratio of Z pT in data & MC
- Normalize wrt xsection
- Jets
- Different jet multiplicities (Alpgen samples)