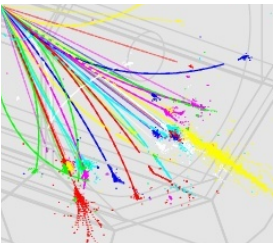
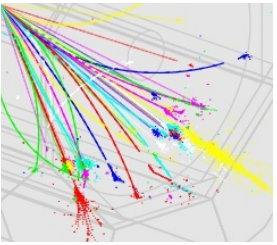


RAL Benchmarking Plans

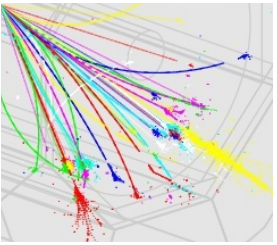
13.11.2007

M. Stanitzki



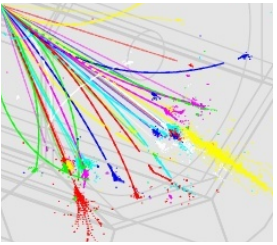
Overview

- PandoraPFA studies
  - cross-checks
  - bencmarking a Sid-ish detector
- Benchmarking
  - ECAL studies
  - ttbar



A Sid-ish Detector

- Scale LDC00Sc down in r and Z and increase field
- Probably we can do better by calibrating for each point separately. Effects of ~ 0.5%-1%
- Using track cheaters so tracker impact minimal
- Basically all tools are in place ...

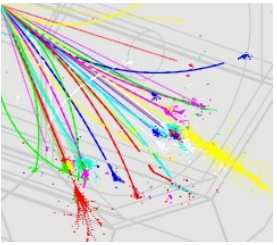


Results

Configuration	n/sqrt(E)	Jet energy
LDC00Sc	30.5	45
LDC00Sc 5T	31.2	45
LDC00Sc 30 layer ECAL	32.4	45
LDC00Sc Sid-ish 4T	32.6	45
LDC00Sc Sid-ish 5T	32.0	45
LDC00Sc Sid-ish 6T	33.8	45
LDC00Sc	36.7	100
LDC00Sc Sid-ish 4T	42.7	100
LDC00Sc Sid-ish 5T	41.0	100
LDC00Sc Sid-ish 6T	39.8	100

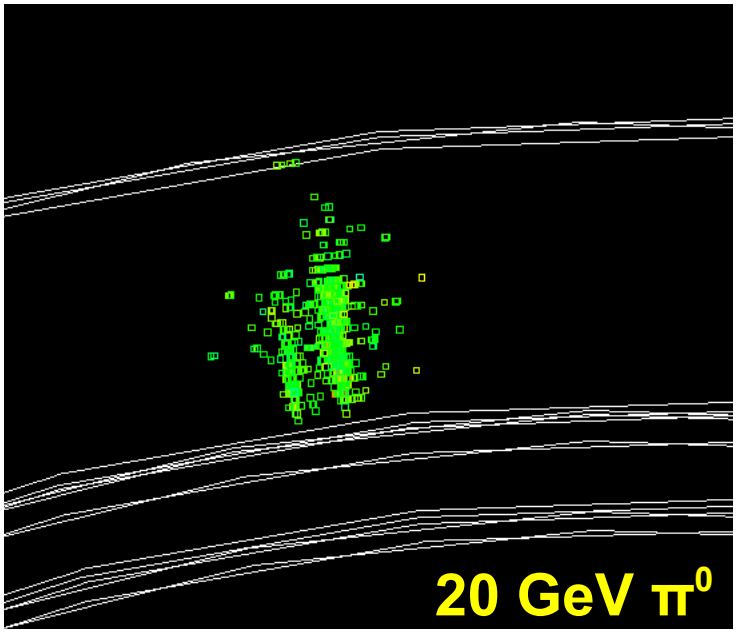
Errors ± 0.2-0.3

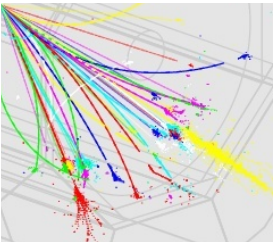
100 GeV Numbers very preliminary



ECAL Studies

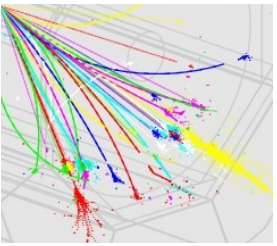
- study π^0 separation
  - which granularity is required ?
  - Gain in physics performance
- H→$\gamma\gamma$
  - Required ECAL resolution ?





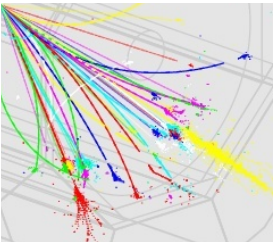
ttbar

- We are interested (and already doing ..)
  - all hadronic top mass/cross-section
- allows to test
  - PFA/calorimetry
  - vertexing
  - impact of forward region
- Already have a basic analysis

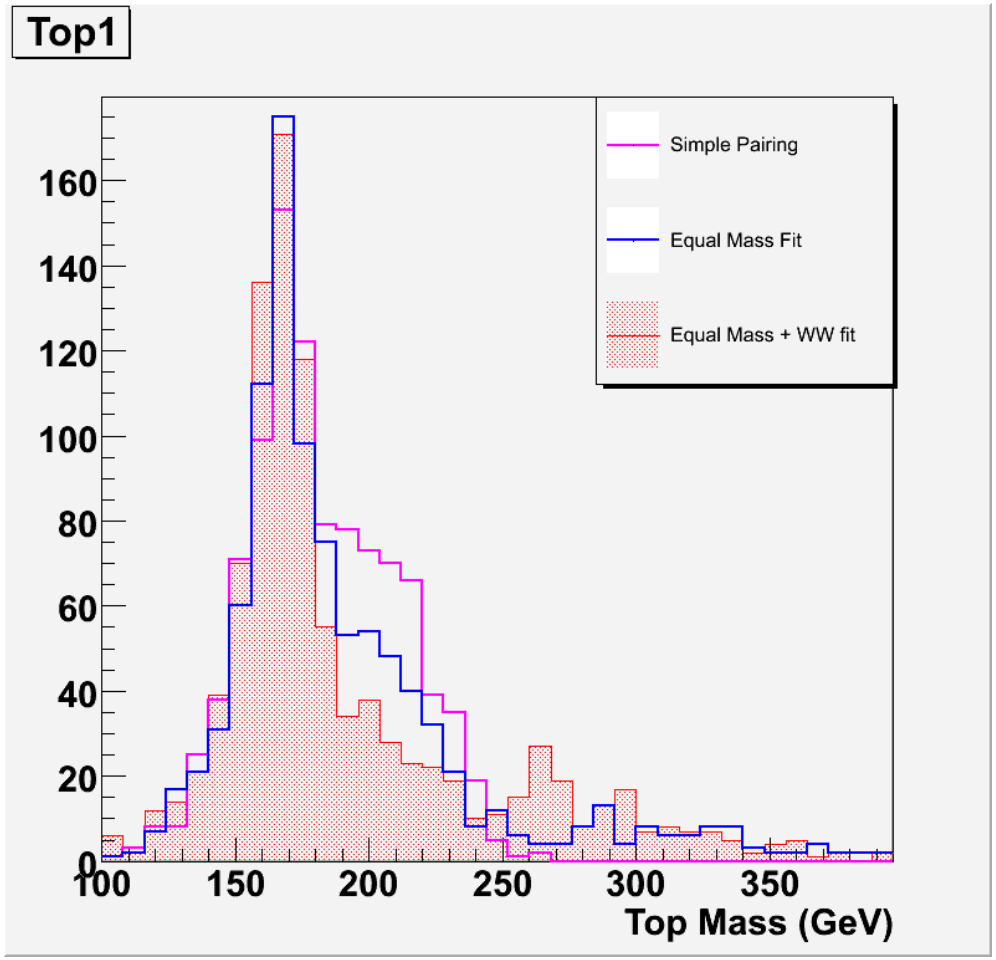


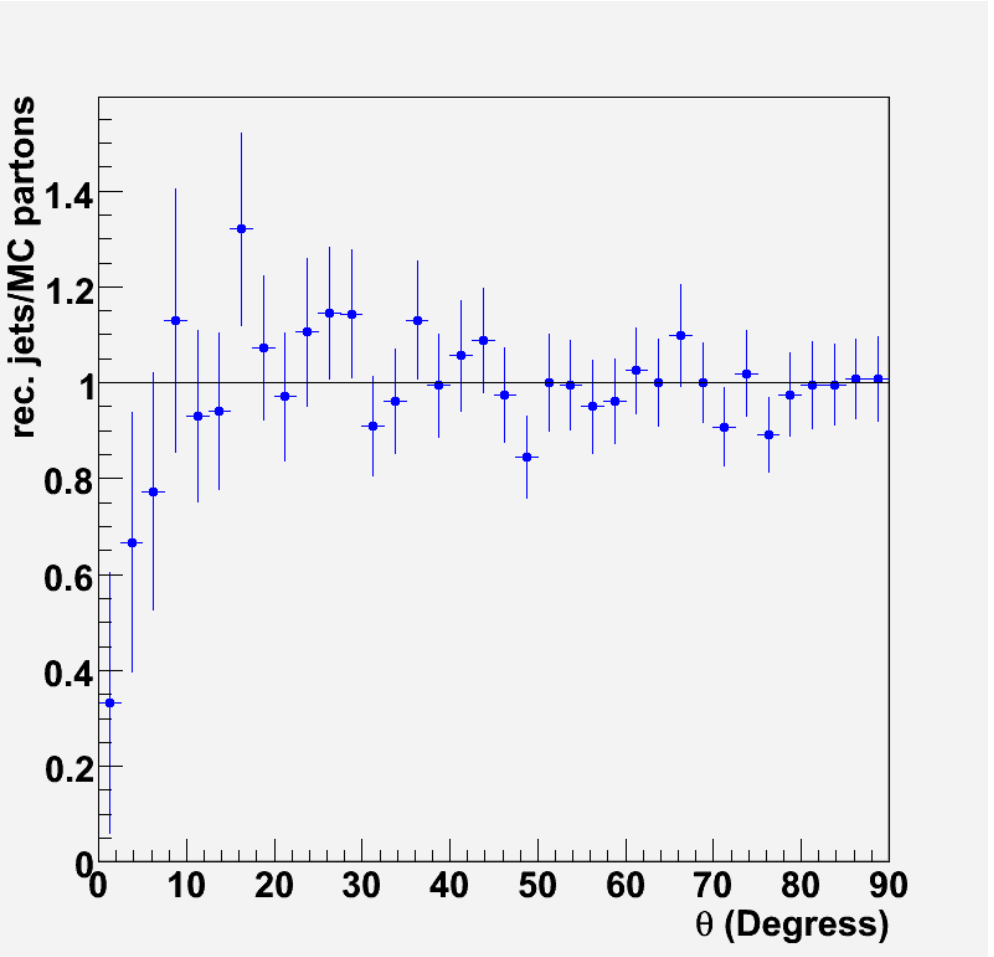
ttbanana package

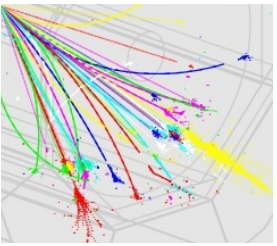
- MARLIN processor so far
- Only based on LCIO
  - Reconstructed Particles
  - Jets
- Uses kinematic Fitter for TopMass reconstruction
- Easy to use with org.lcsim reconstruction
  - no other MARLN dependencies



Some plots

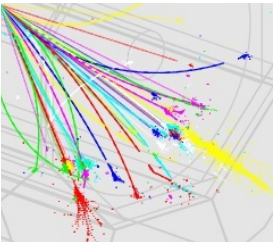

Top1
Simple Pairing
Equal Mass Fit
Equal Mass + WW fit
160
140
120
100
80
60
40
20
0
100
150
200
250
300
350
Top Mass (GeV)


rec. jets/MC partons
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0
10
20
30
40
50
60
70
80
90
θ (Degress)

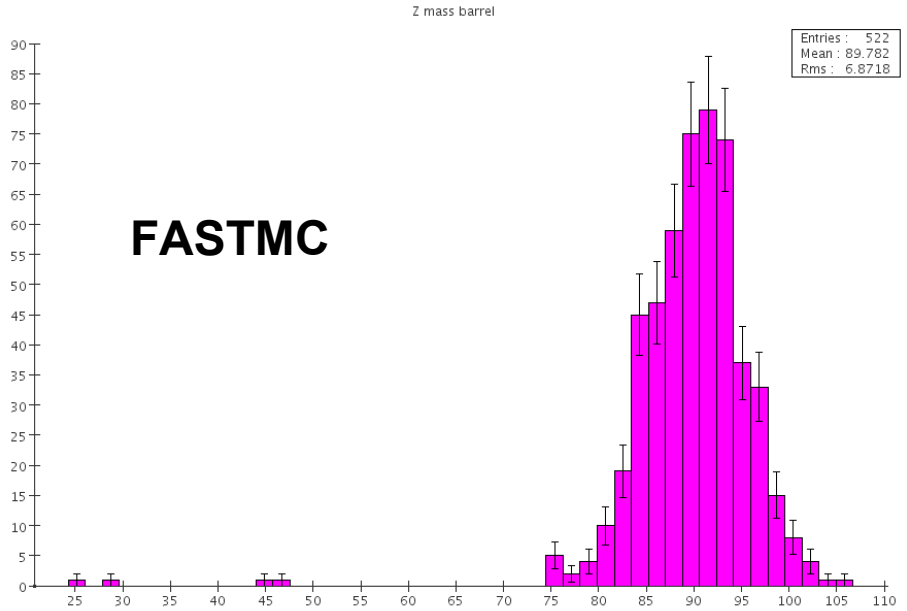


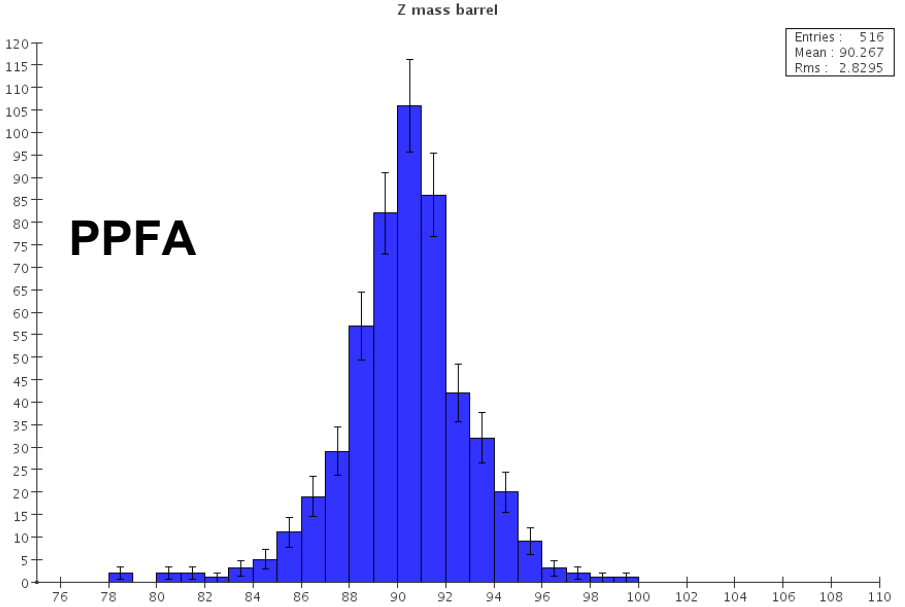
Some technicalities

- SLIC is set up at RAL
  - used on a regular basis
  - Expertise to generate events, that are not available at SLAC (yet)
- org.lcsim setup
  - FastMC
  - PerfectPFA (from R. Cassell)
  - Same interface



FASTMC vs. PPFA





Both plots done with the same analysis program, just changing the inputs !