

July 8th Weekly Update

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Nevis Labs



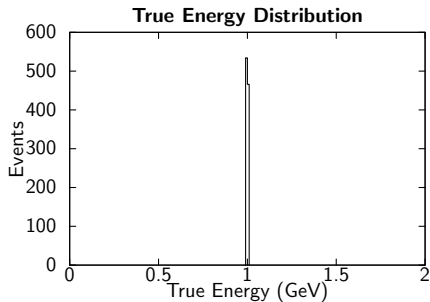
July 12, 2013

- ① Cluster Reconstruction Studies Continued
- ② Next Week

Single Electron Parameters (ubfcl prodsingle)

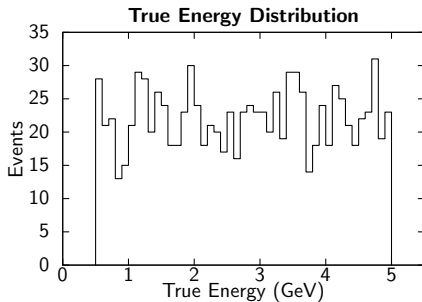
Monoenergetic

- 1000 events
- 1 GeV
- Reconstruction with FFThit and FuzzyCluster



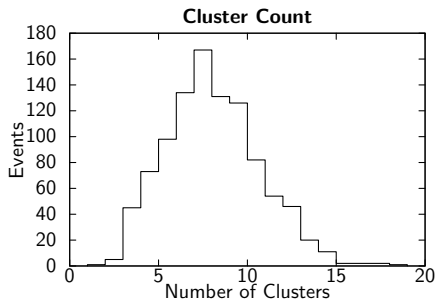
Uniform

- 1000 events
- 0.5 - 5 GeV
- Reconstruction with FFThit and FuzzyCluster

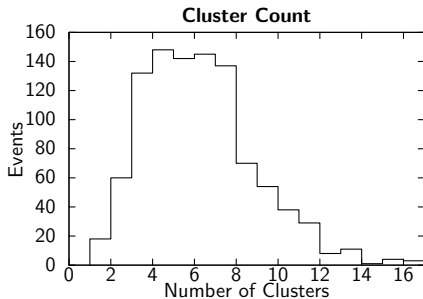


Cluster Count

Monoenergetic



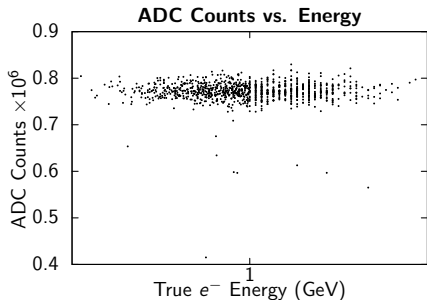
Uniform



Average total clusters per event $\sim 6/7$

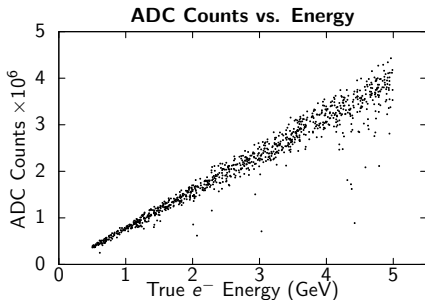
ADC Counts vs. True Energy

Monoenergetic



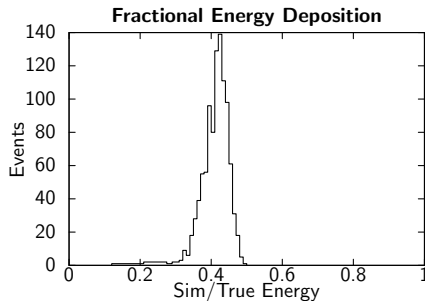
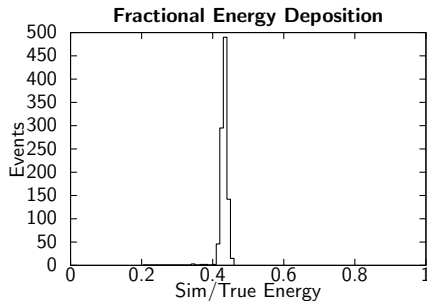
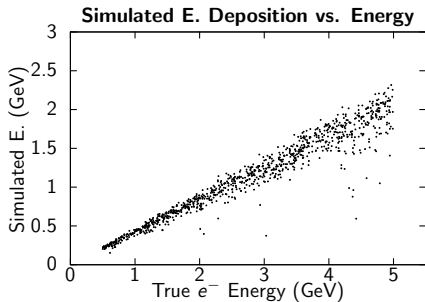
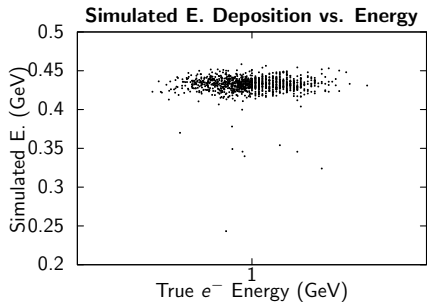
Center to edge = 0.5 MeV.
Same ADC spread despite small true energy variation.

Uniform



ADC scales linearly with true energy.
Larger spread at higher energy.

Simulated E. Deposition on Wires vs. True E



Next Week

Cheater Calorimetry (Some this week)

- Map hits to true ionization XYZ
- Calculate “cheater” energy reconstruction (calorimetry) for electron showers by correcting energy deposition on wires with Birks recombination
- Much harder than I anticipated

Hardware

- Testing shaper and FEM response
- Plots of ADC vs. V_{in}

PMT GUI

- Develop GUI for online PMT monitoring
- Currently learning ROOT GUI objects