EMC sparsification study progress report

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Motivation

- Increasing PEP-II luminosity = more data
- EMC deadtime increases with increased data flow
- deadtime = lost data
- We can reduce deadtime by lowering the amount of data/event recorded via the digi SeedEnergyCut threshold
- Question: How does raising the threshold affect the data quality (resolution)?
- Goal: How much can we raise the threshold by without significantly compromising data quality?
Outline of study

• Generated single-photon MC using a high-luminosity, low background Config (Oct2005)
• Generated with a range of photon energies:
  • 50, 100, 200, 500, 1000, 2000 (all Mev)
• Generated with a range of thresholds:
  • 5 , 7, 10, 15 and 20 Mev
• EMC split into 5 regions in $\theta$ (endcap, and 4 barrel) in steps of 0.5 radians from 0 to 2.5
• Each energy/threshold fitted with Novosibirsk function and parameters extracted.
Monte Carlo production

- Generate 1k-10k single photon events, depending on energy using MooseApp
• Mean shifts up 0.64->0.89 for E/Egen
• Number of events drops 276->165
- Mean shifts up -> for E/Egen
- Number of events drops ->
Summary/todo

- Produce error plots as a fn of threshold
- Perhaps generate more MC -> better statistics