Possible Use of Muons for the BTeV Electromagnetic Calorimeter *In Situ* Calibration

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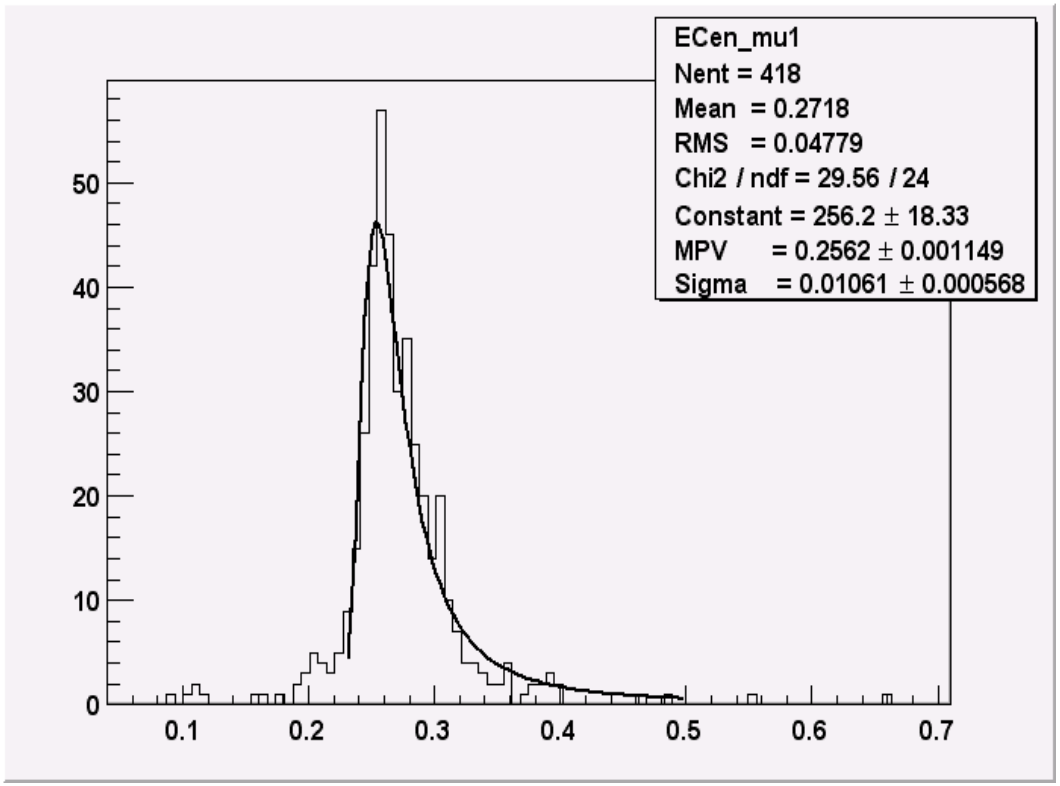
In Situ Calibration with μ^+/μ^- (?)

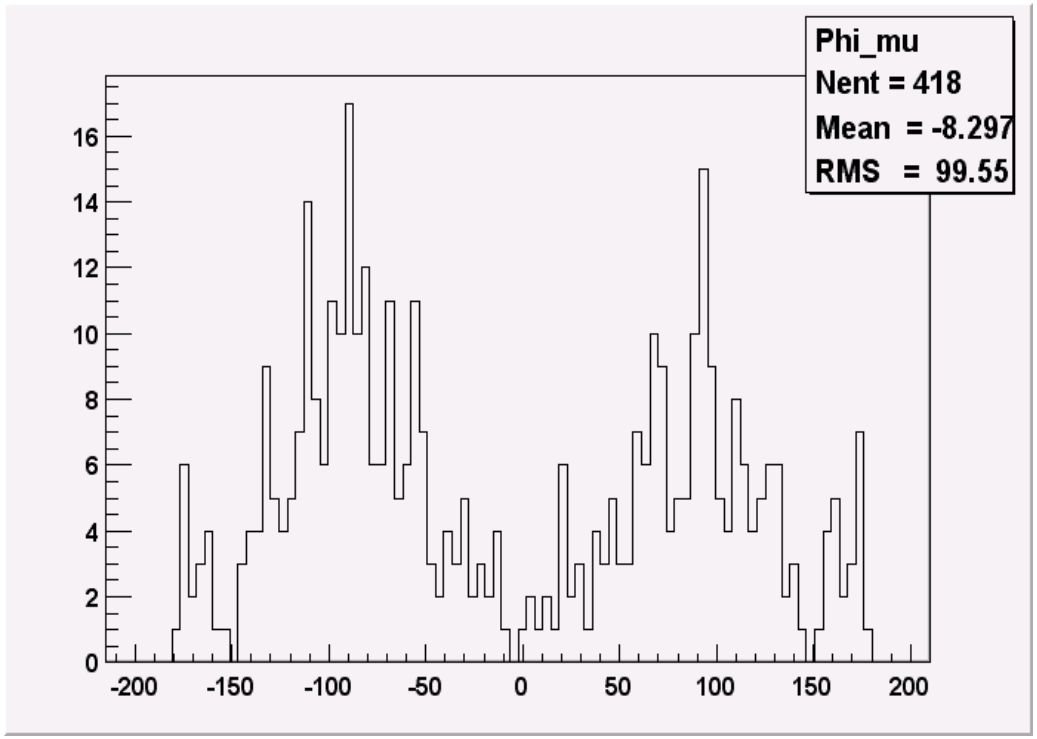
Should we employ this scenario ?



Energy deposition in ”max” crystal, GeV

- **Isolated 1-crystal's showers matched with μ's**
- **Statistical precision of peak position ~0.45% (Landau fit)**
- **~400 ``useful" μ's / 10,000evts**
- **Integral rate ~0.04μ's/evt/ECAL - ~8-10 times lower than e's)**

In Situ Calibration with μ^+/μ^- (?)



phi-distribution for selected μ's

- ϕ-asymmetry within factor~4
- Collection rates :
  - 25% - ~0.8e-05 μ's/crystal/evt
  - 25% - ~0.4e-05 μ's/crystal/evt
  - 50% - ~0.2e-05 μ's/crystal/evt
- Need several hundreds μ's/crystal to achieve 0.2% precision – a couple of days (?)

Summary

- Collection rate for μ's is significantly lower that for e's; use of μ's for *in situ* calibration is somewhat less promising than the e's scenario
- However, calibration with μ's will cover the low energy end and can be used to check linearity of response