Data Quality Investigations

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Dominique has looked at some data quality aspects

- pedestal value for various triggers
- electron response and resolution for various analysis parameters

More work ongoing

- noise estimates for clusters
- effect of resolution fit parameter assumptions

RUN 9171 (physics)
peds(random) - peds(physics)

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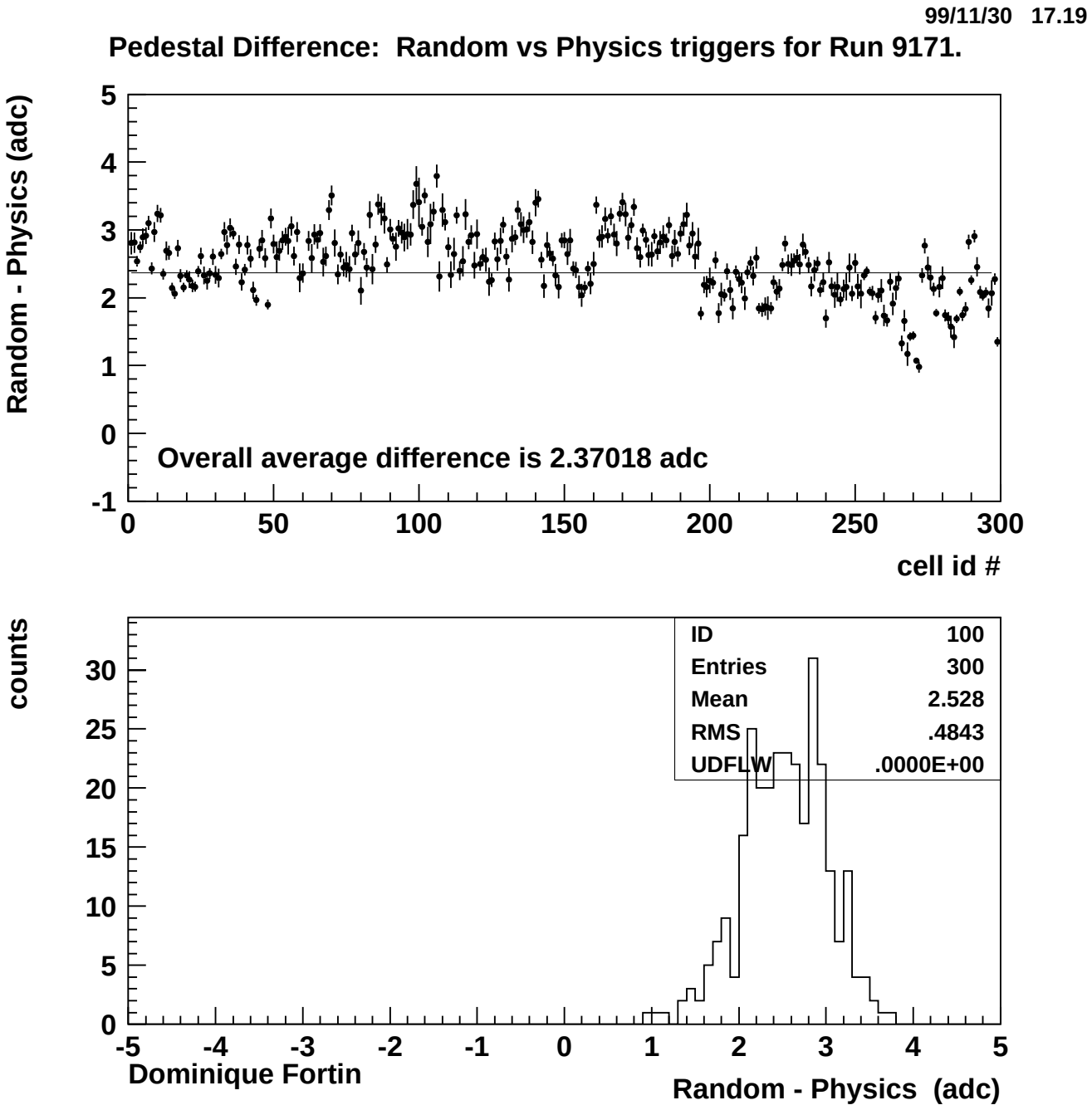

RUN 9171 (physics)
RUN 9327 (noise)
peds(random 9171) - peds(noise 9327)

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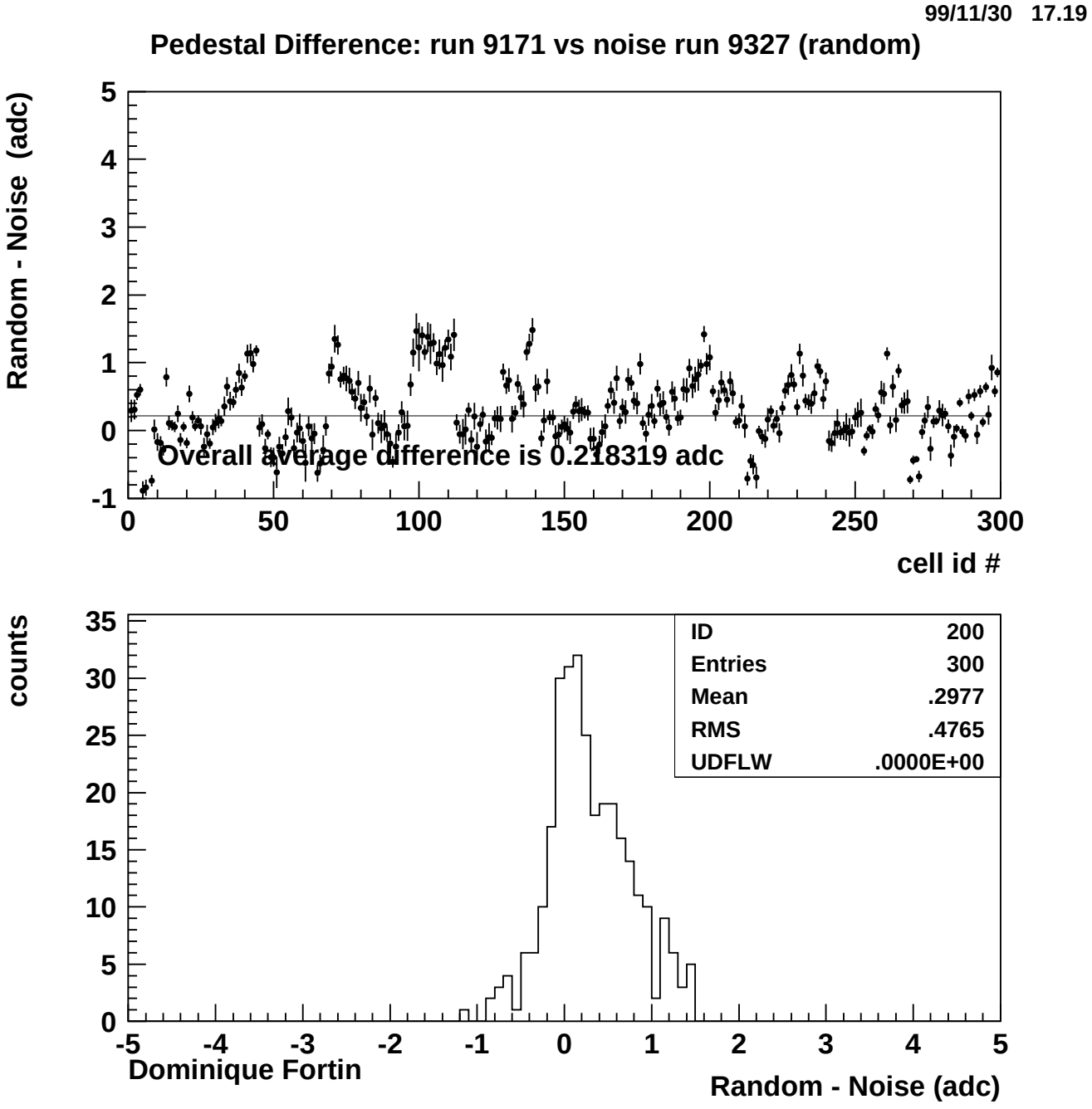

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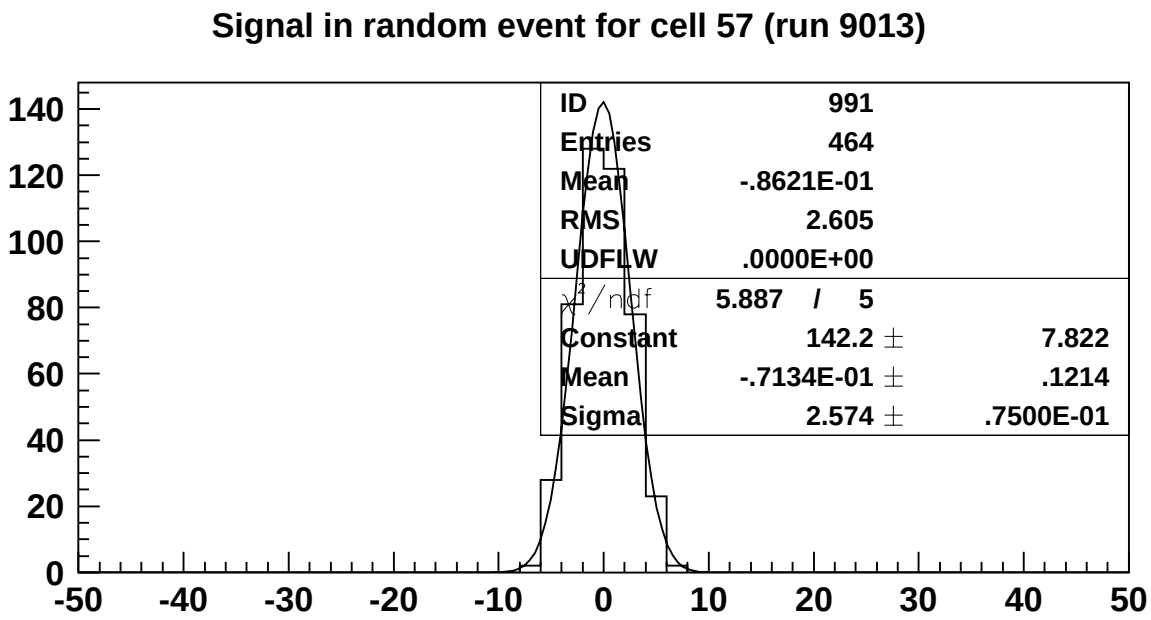
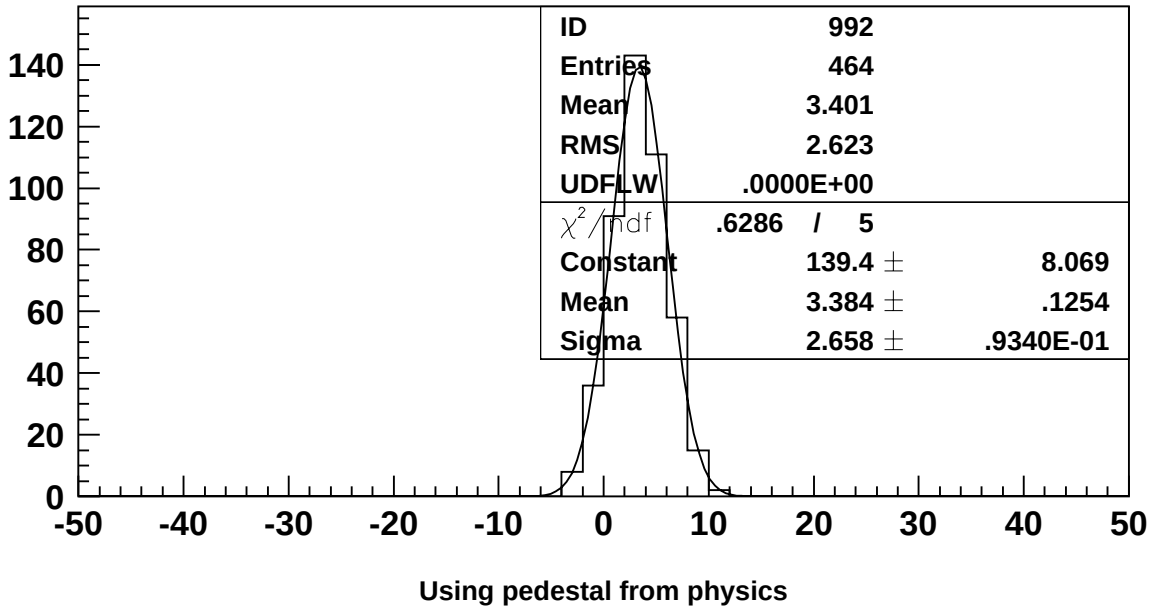
99/12/01 13.13



Using pedestal from random



Using pedestal from physics

Need to use peds from trigger type under analysis

Electrons Aug 99
Cubic fit, Uncalibrated

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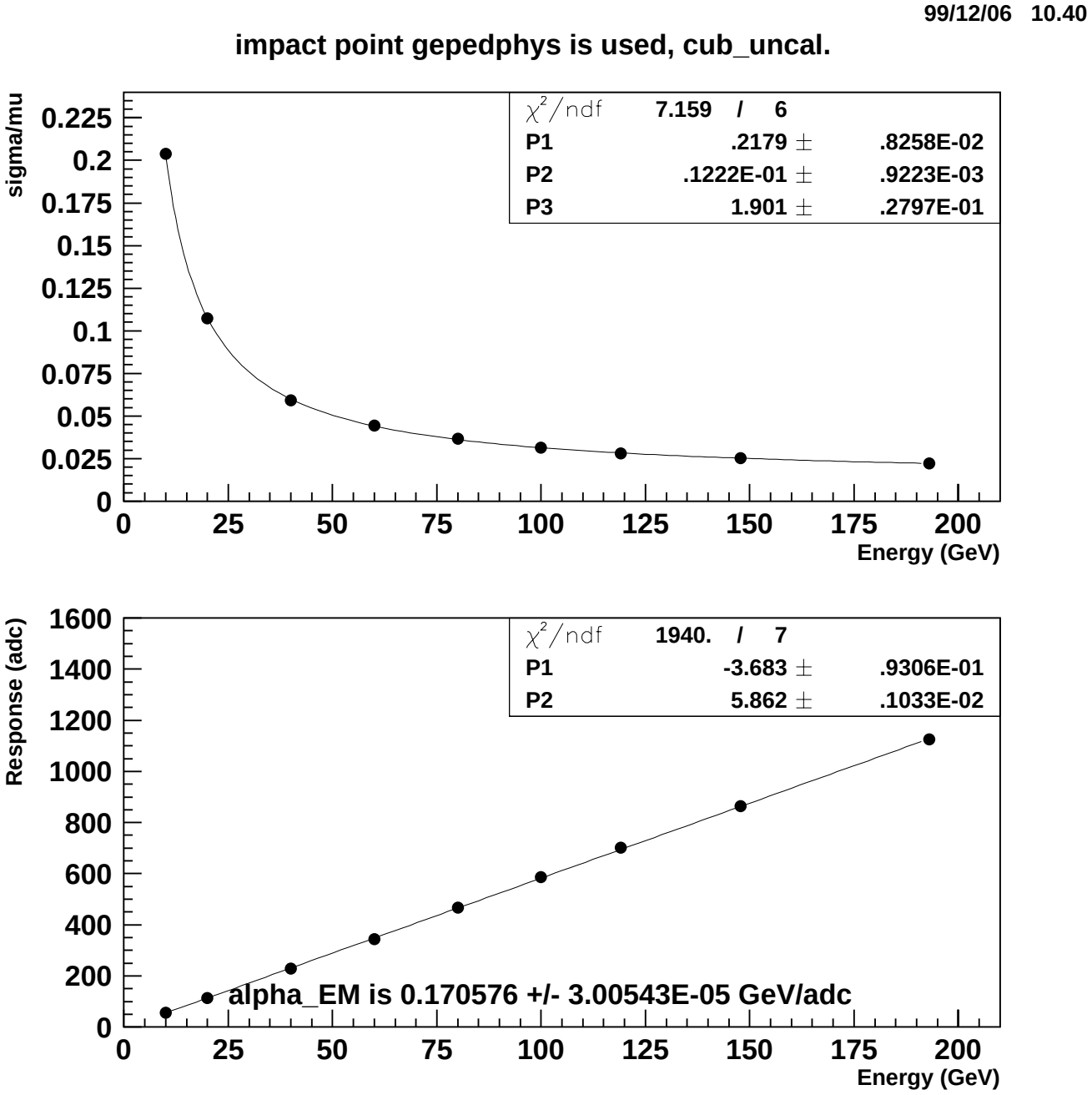
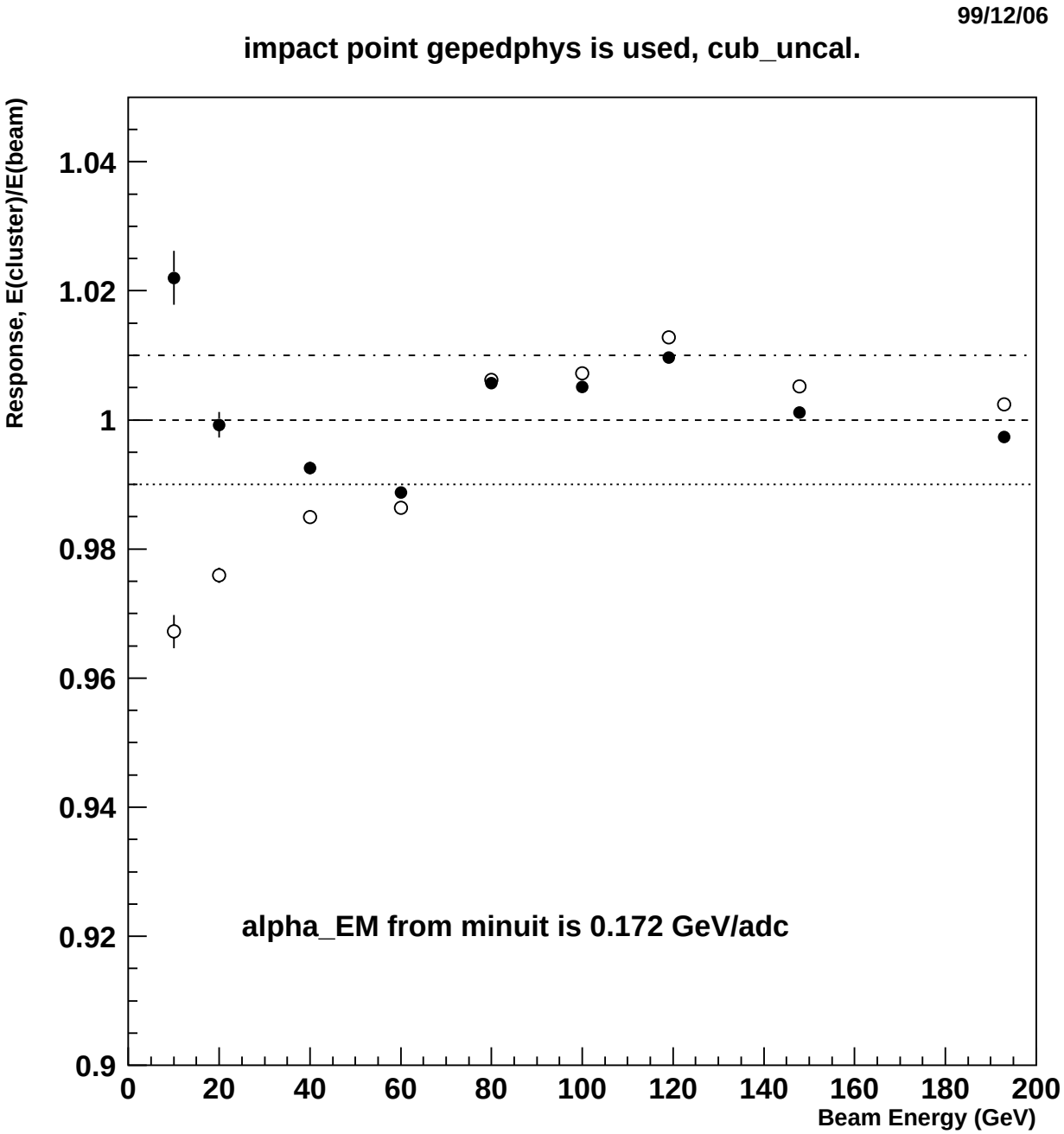


Resolution Plot: large σ/μ but good χ^2
Response Plot: offset = -3.7 adc = 630 MeV

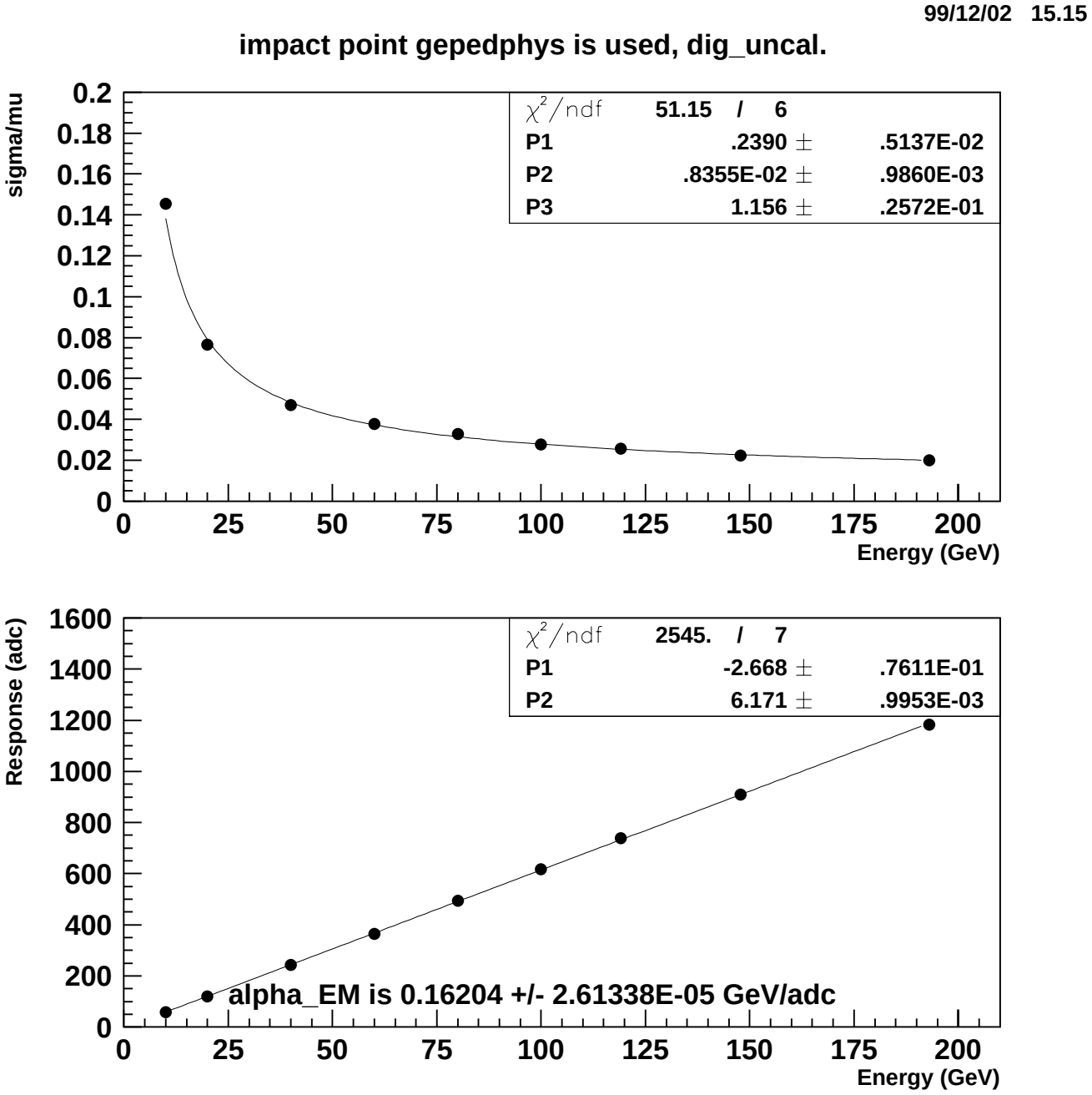
Electrons Aug 99
Cubic fit, Uncalibrated

Dominique Fortin



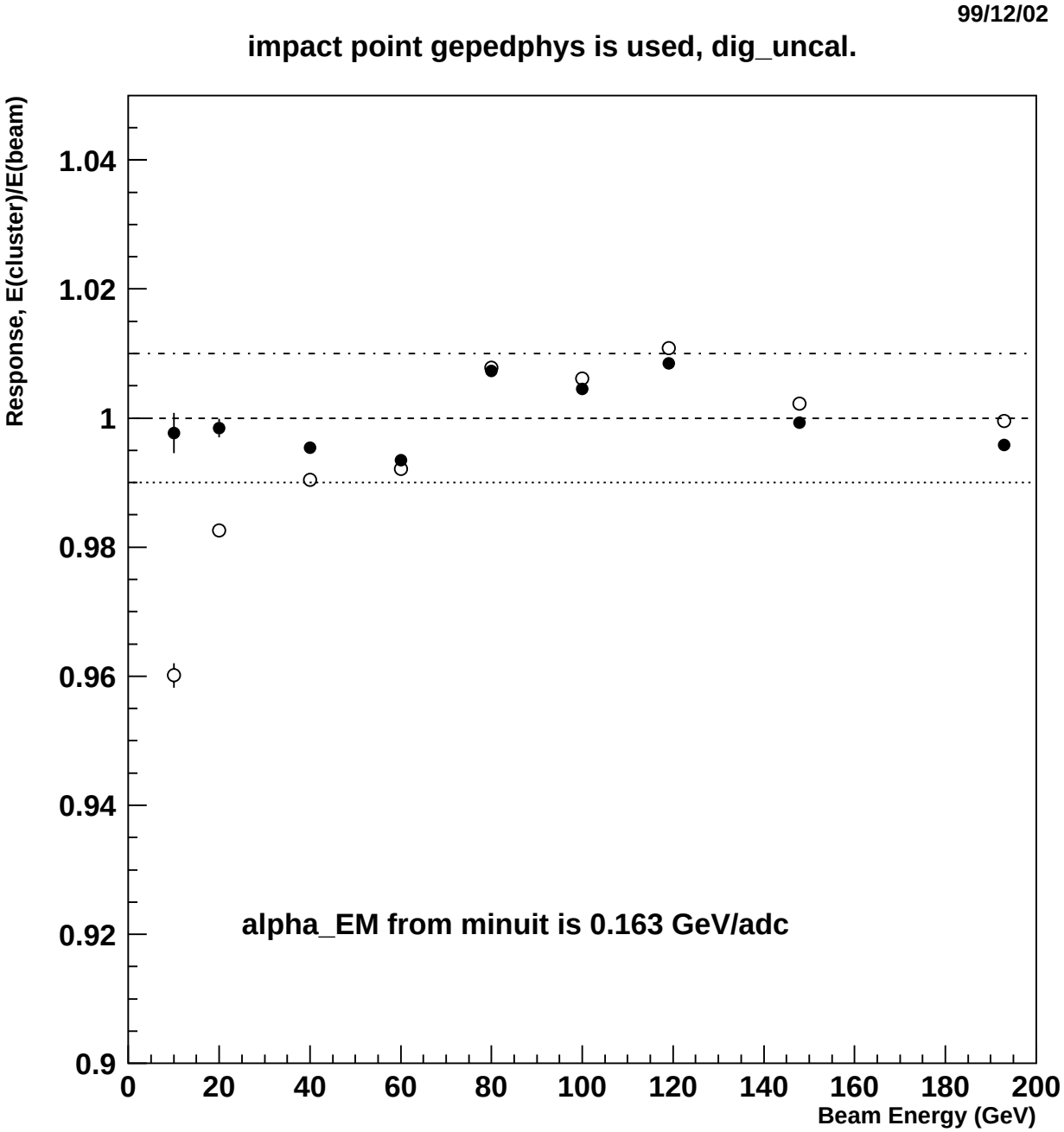
open circles: signal(adc) = $\alpha_{\mathbf{em}} E_\circ$ where $\alpha_{\mathbf{em}} = 0.172$ GeV/adc
full circles: signal(adc) = $\alpha_{\mathbf{em}} E_\circ + \delta$ where $\alpha_{\mathbf{em}} = 0.171$ GeV/adc

Electrons Aug 99 Dominique Fortin
Digital Filtering 991118, Uncalibrated



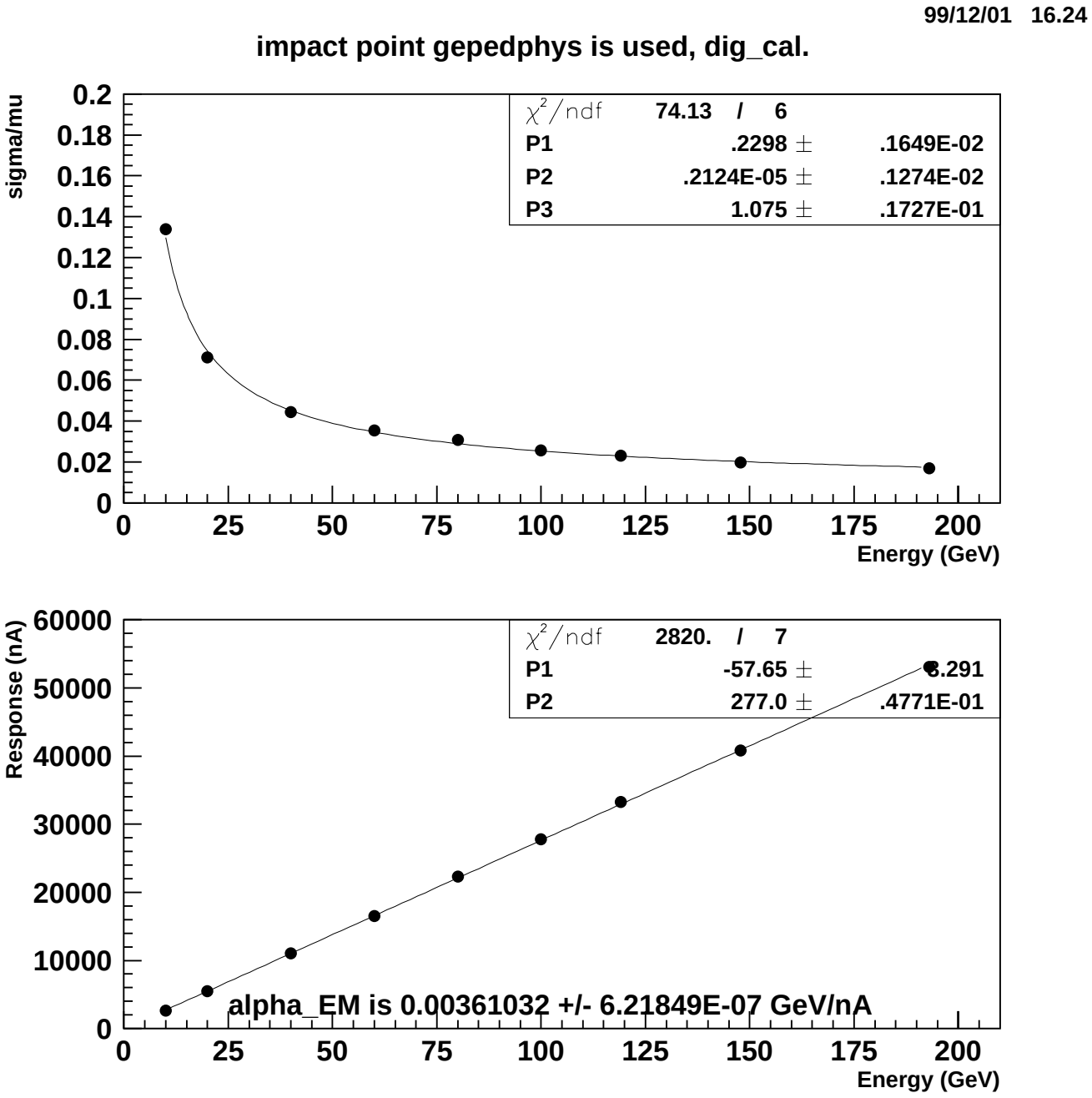
Resolution Plot: better σ/μ but bad χ^2
Response Plot: offset = -2.2 adc = 365 MeV

Electrons Aug 99 Dominique Fortin
Digital Filtering 991118, Uncalibrated



open circles: signal(adc) = $\alpha_{\mathbf{em}} E_\circ$ where $\alpha_{\mathbf{em}} = 0.163$ GeV/adc
full circles: signal(adc) = $\alpha_{\mathbf{em}} E_\circ + \delta$ where $\alpha_{\mathbf{em}} = 0.162$ GeV/adc

Electrons Aug 99 Dominique Fortin
Digital Filtering 991118, Calibrated

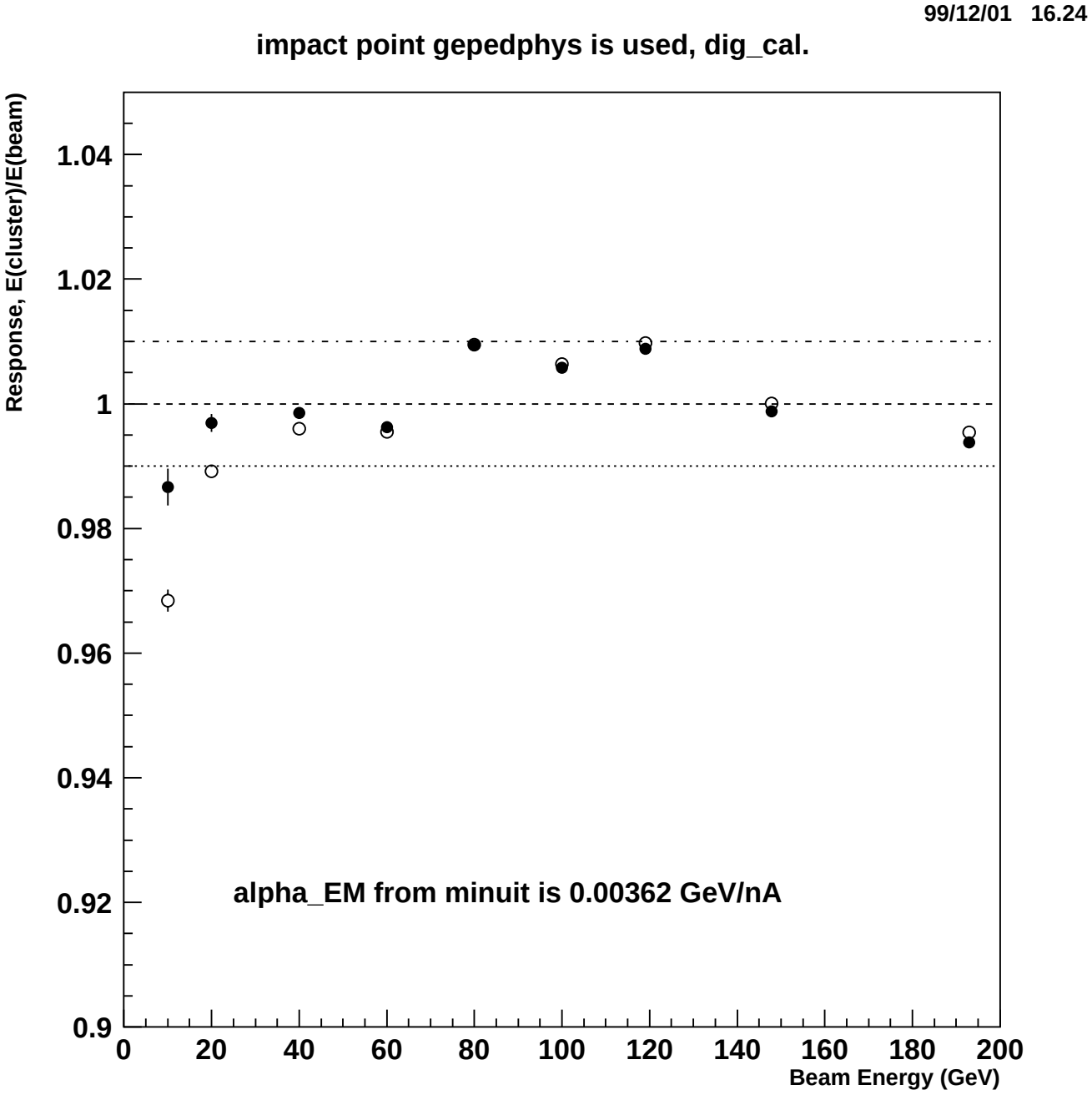


Resolution Plot: best σ/μ but worse χ^2
Response Plot: offset = -57.7 nA = 208 MeV

- the noise depends on run number or time?
- are we sensitive to a natural offset of order of a few $E_{\text{critical}} = 20$ MeV?

Electrons Aug 99
Digital Filtering 991118, Calibrated

Dominique Fortin



open circles: signal(adc) $= \alpha_{\mathbf{em}} E_\circ$ **where** $\alpha_{\mathbf{em}} = 3.61$ **GeV**$/\mu$**A**
full circles: signal(adc) $= \alpha_{\mathbf{em}} E_\circ + \delta$ **where** $\alpha_{\mathbf{em}} = 3.62$ **GeV**$/\mu$**A**