

Status Report

1999 HEC Beam Test Data Analysis

Marseille
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Dominique Fortin
University of Victoria, Canada

Started to look at the electron data

- Just using pedestal subtracted adc.
- Essentially looking at data quality.
- Going through all selected impact points, so far points B, F (June 99)
points C, G (August 99).
- Cell 61 requires an extra factor of 2 (2.12 ± 0.17).
- Response and resolution: no surprises.

Started to look at pion data

- Shapes for π^+ contamination of e^+ : small effect.

Future: Refine analysis using weights and calibration

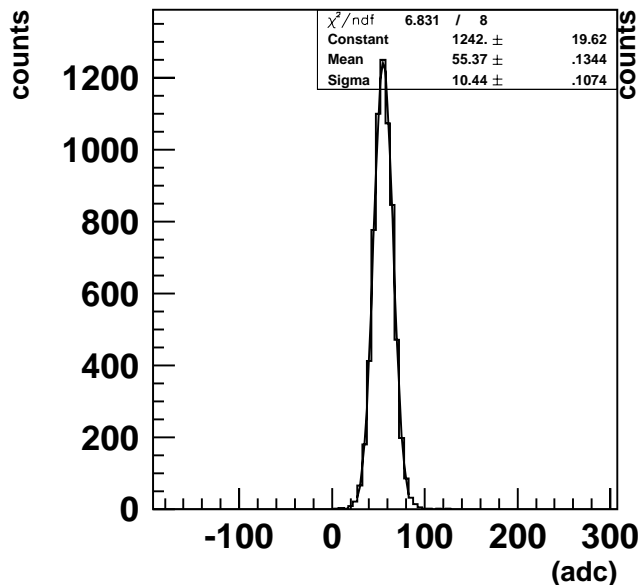
- Look at noise.
- e^+ : response and resolution.
- π^+ : response and resolution.
- etc.

Electron Data

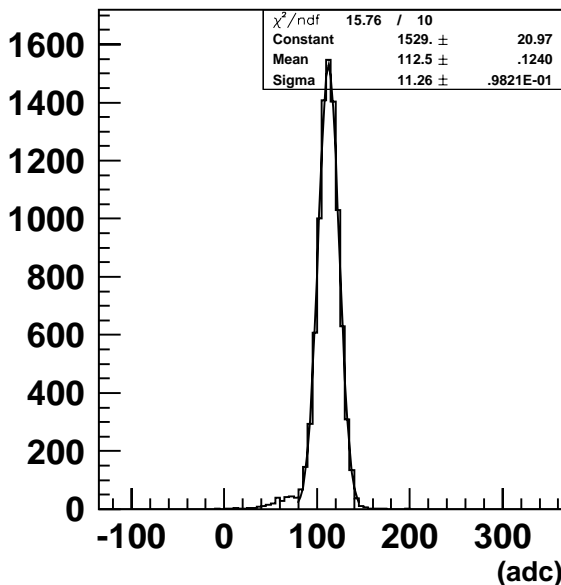
August 99, impact point G

99/10/05 13.31

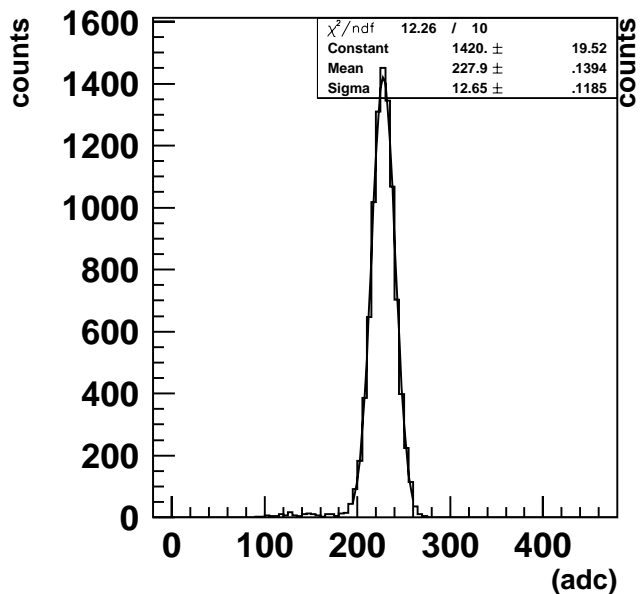
impact point ge39 is used



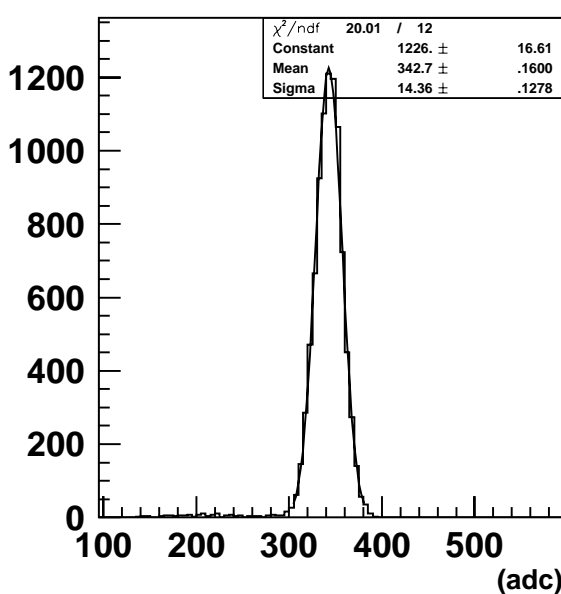
HEC response to 10 GeV electrons



HEC response to 20 GeV electrons



HEC response to 40 GeV electrons



HEC response to 60 GeV electrons

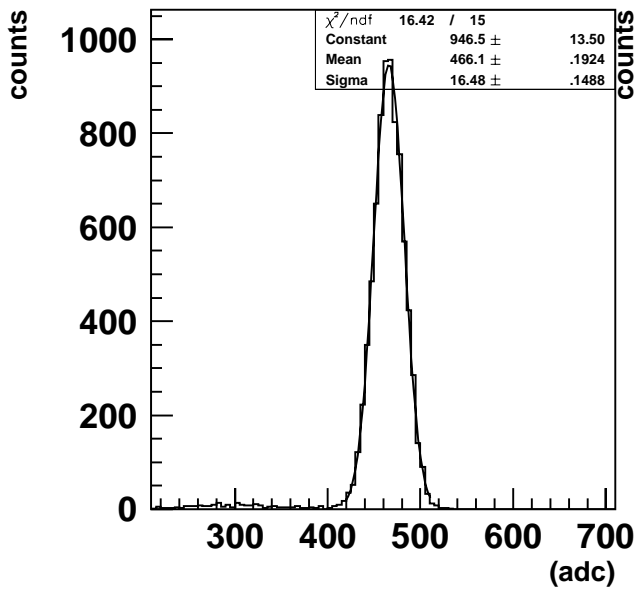
Signal (adc) distribution for e^+ of 10, 20, 40 and 60 GeV.

Electron Data

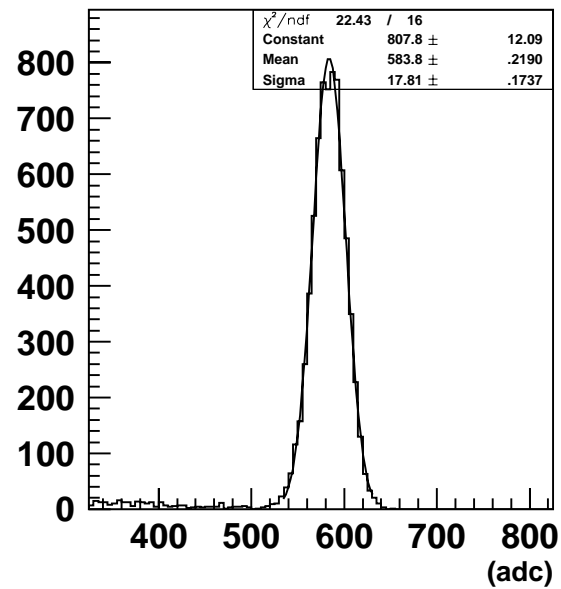
August 99, impact point G

99/10/05 13.31

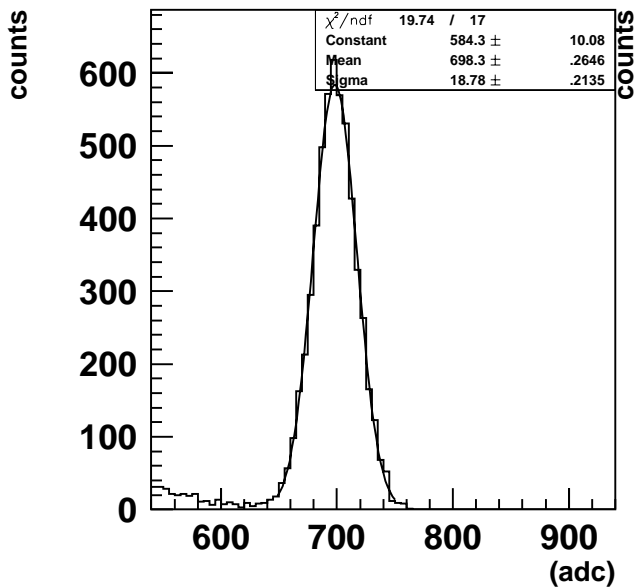
impact point ge39 is used



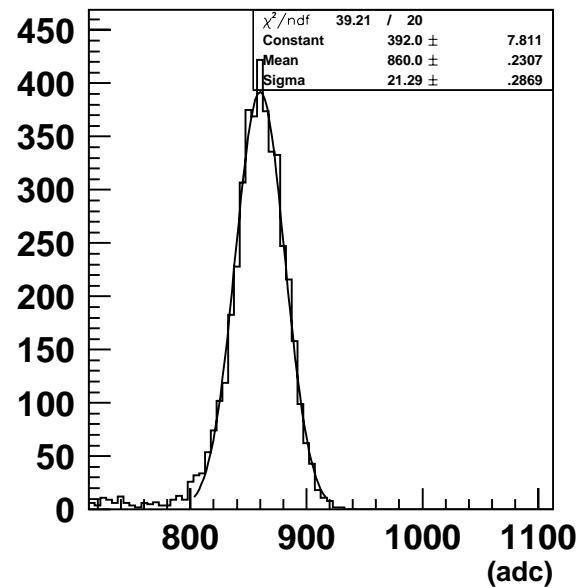
HEC response to 80 GeV electrons



HEC response to 100 GeV electrons



HEC response to 120 GeV electrons



HEC response to 147.8 GeV electrons

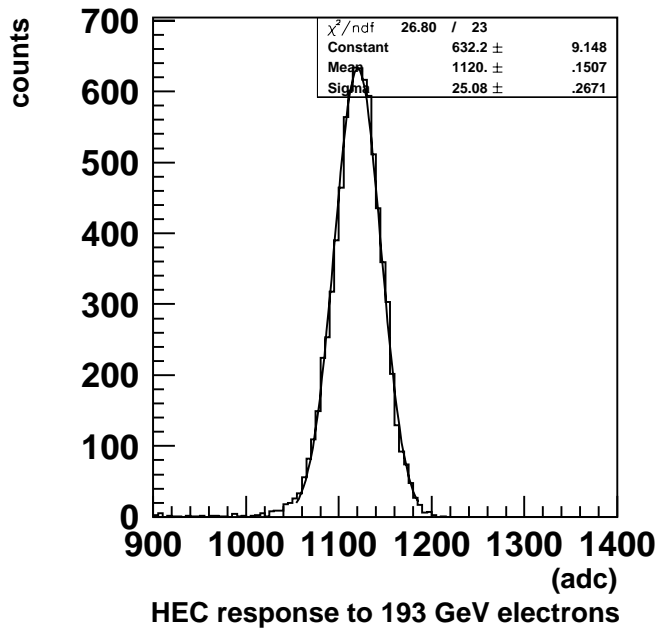
Signal (adc) distribution for
 e^+ of 80, 100, 120 and 147.8 GeV.

Electron Data

August 99, impact point G

99/10/05 13.31

impact point ge39 is used



Signal (adc) distribution for e^+ of 193 GeV.

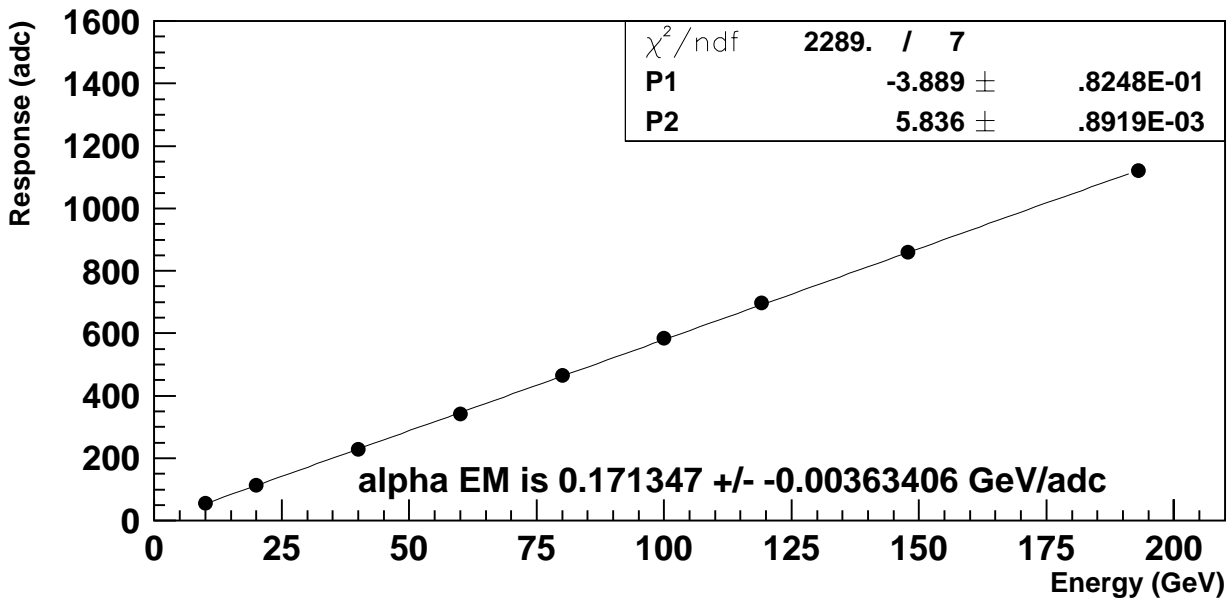
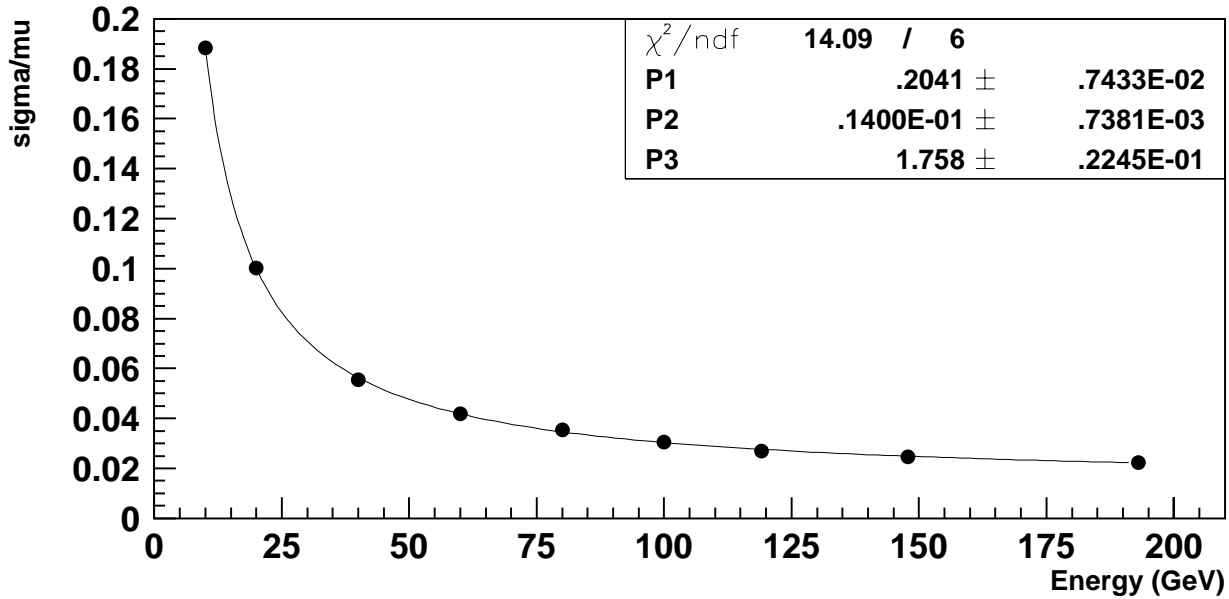
Electron Data

August 99, impact point G

Resolution and Response

99/10/05 13.31

impact point ge39 is used



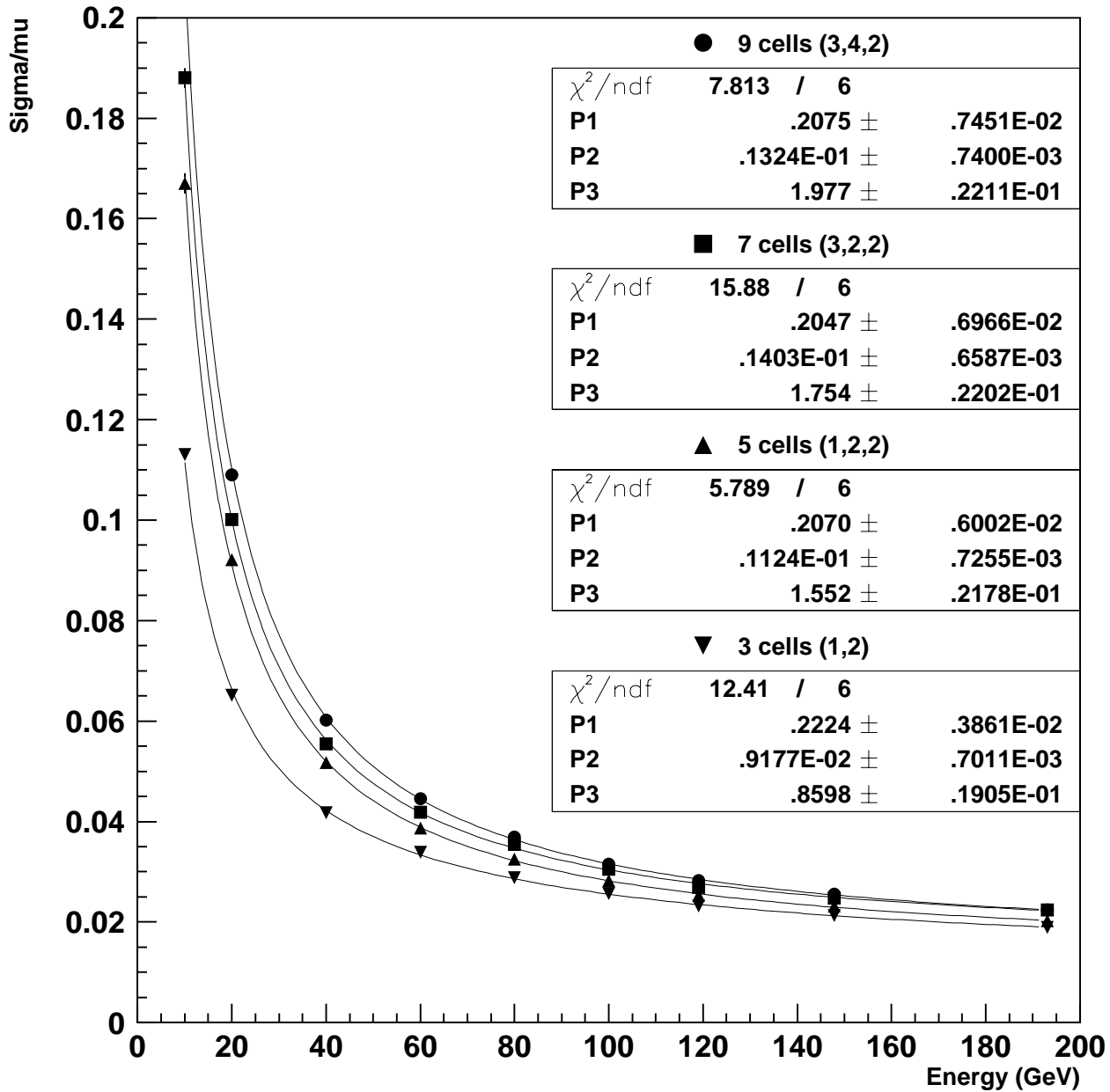
No surprises...

Electron Data

August 99, impact point G

99/10/05 14.17

Resolution points for 4 different cluster sizes (impact G)



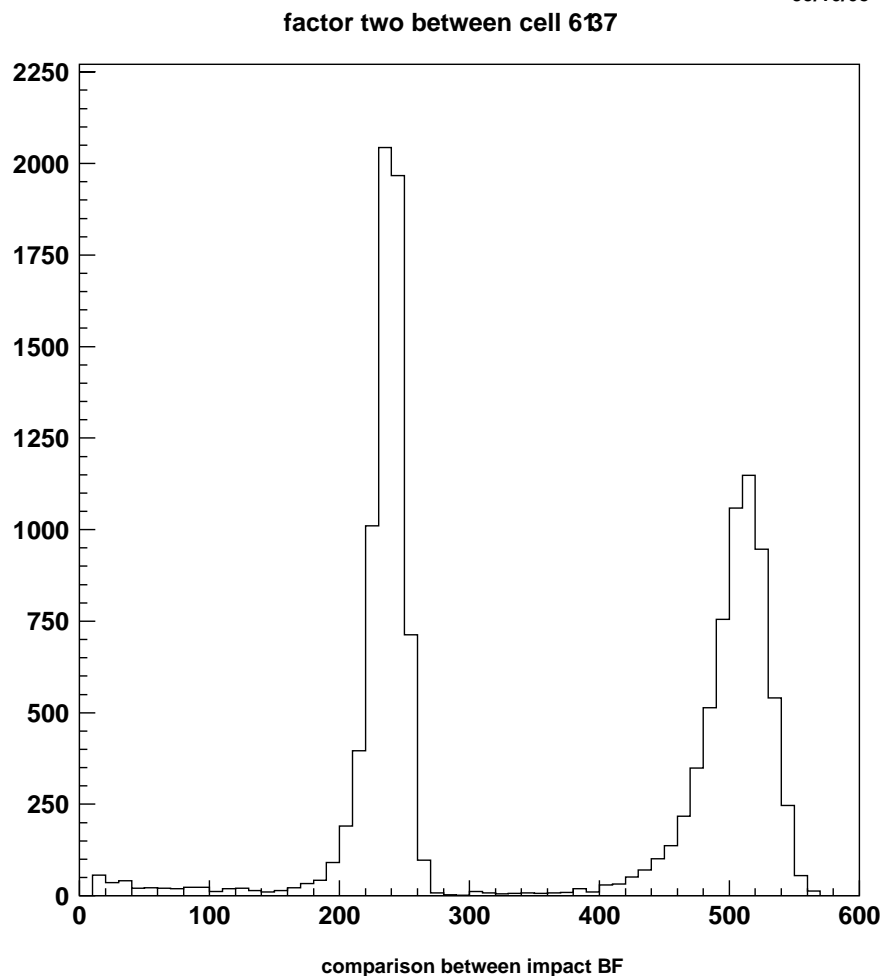
Sampling term: worse for 3 cell cluster
 Electronics noise: worse for bigger clusters

Electron Data

August 99

Cell 61 Problem

99/10/05 16.37



This figure shows two superimposed signal(adc) distributions:

- Left peak: 100 GeV e^+ on cell 61 only
- Right peak: 100 GeV e^+ on cell 37 only

Both cell 37 and 61 are on the front face

Cell 61 is just above cell 37, hence on the same module.

Factor of 2 required for cell 61... H.V.?? Gain??

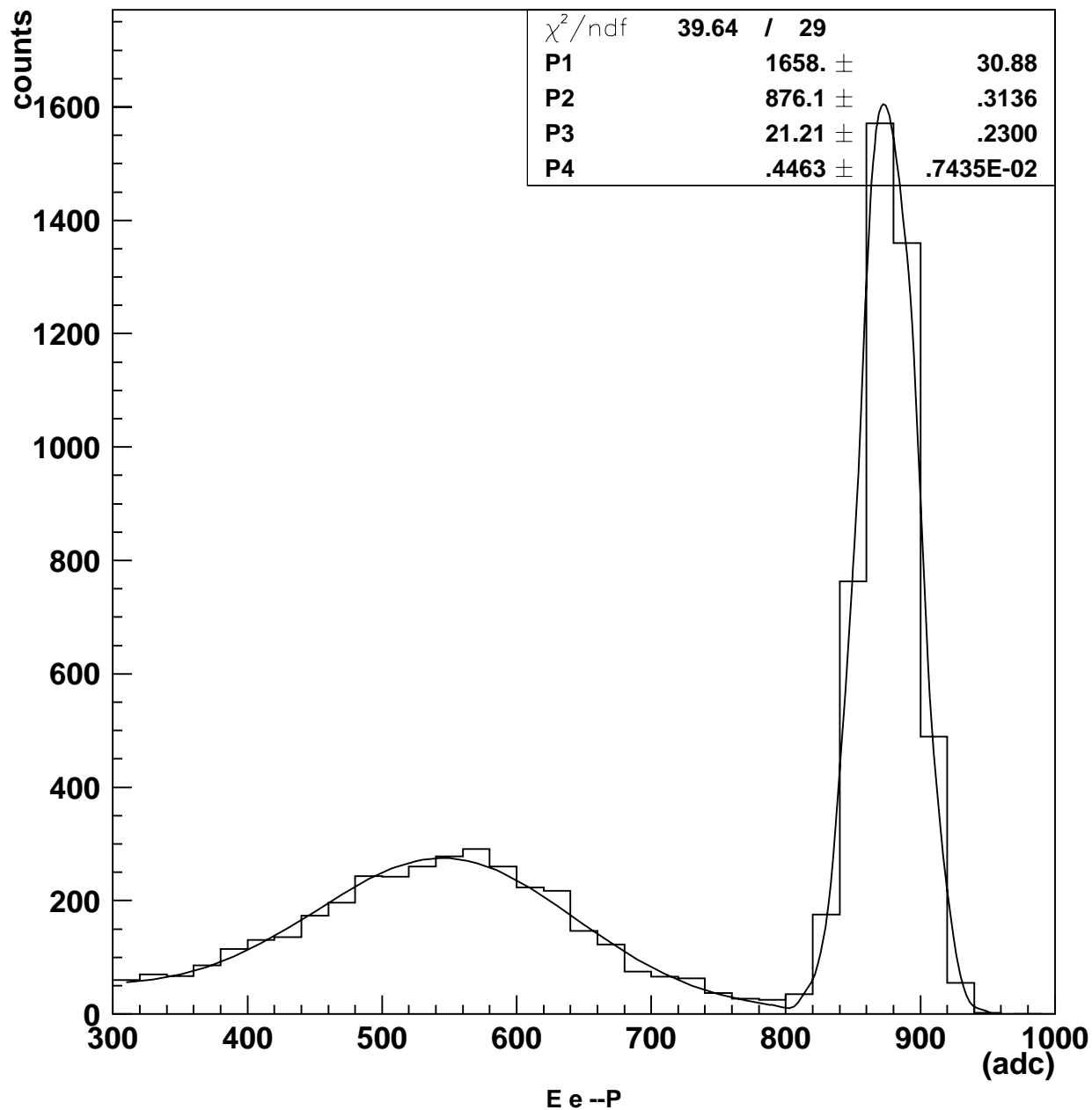
Electron Data

August 99

π^+ contamination in e^+

1999/09/07 16.45

Pion fit, impact point fp is used



Signal(adc) distribution for 147.8 GeV e^+ data

The shape of the pion contribution was obtained from pion data

We find that the contamination has a negligible effect on the electron peak position