Positronium intensity measurement preparation (GBAR)

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- Result is same as before..
- Signal finding algorithm was checked but no big improvement.
- Same BG(?) is shown(Beam BG? Or Compton scattered gamma?)
- I check several signal shape in BG region but it looks like signal..(single peak)



Peak width check



Small peak width one is signal not background.

This distribution may come from single photo-electron..

BG peak width(99%) distribution

10

10108

Entries Mean 1.645e-08

RMS 9.198e-09



Before study

the Positronium flux detector



Long time before, Aram presents that 1~2 photo electrons are expected for 0.5MeV gamma and this is matched with above slides.

- This is done before cutting PWO crystal -

Detection near beam pipe



- 13578 data is accumulated then normalized.
- Pedestal is decided by time<0.
- More study required to get beam intensity precisely.



- Intensity(6.1us<t<10.4us) = 50.54V
- Acceptance(ε_{acc}) : 16/($4\pi^*42^2$) = 1/1200.
- $f_{corr} = mean V/(\# of \gamma) = 4.38V/\#$
- Positron # = intensity/ ϵ_{acc} /2(back to back)/ f_{corr}

htemp

RMS 1.138e-08

159114

1.749e-08

Entries

Mean

60

= 6.92e+3 (other detection : ~5500)

Appendix

