

Positronium simulation & TOF issue

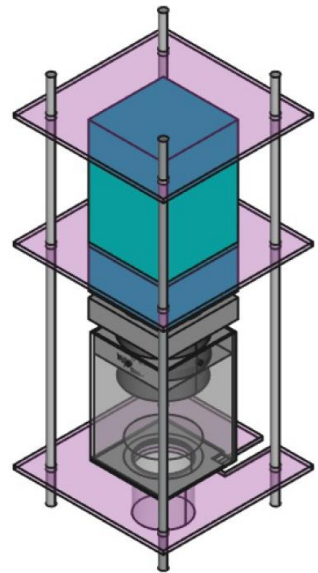
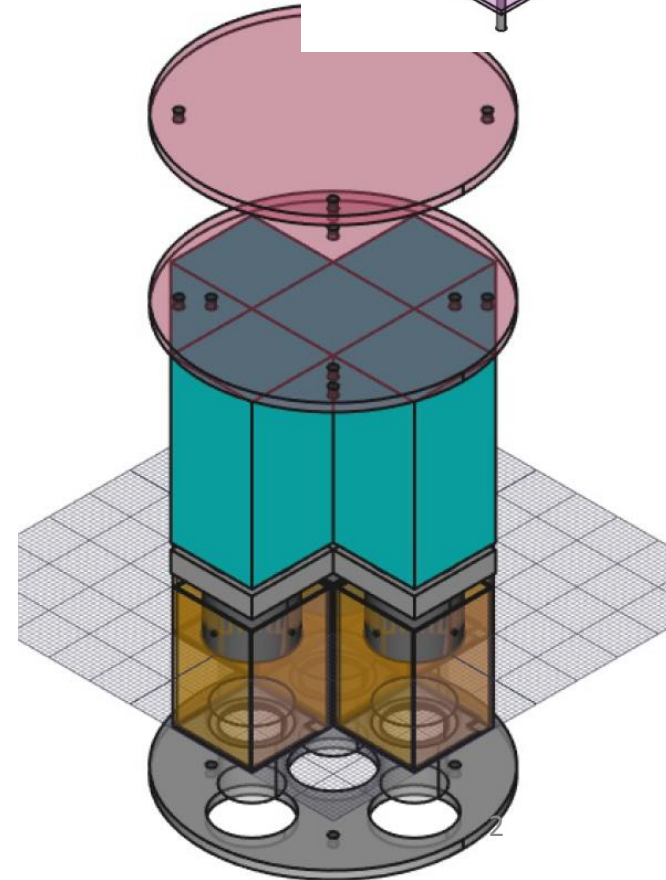
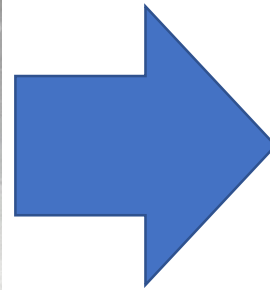
SNU

Bongho Kim

PWO detector assembly for test



weekly meeting



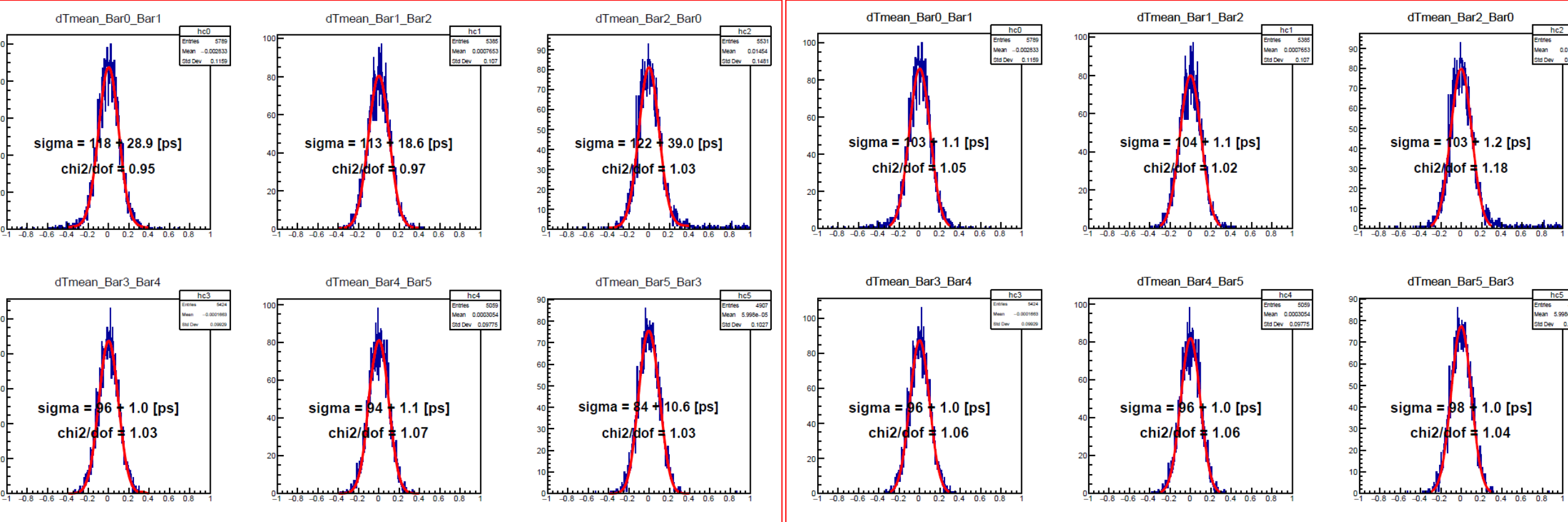
6/3/2019

PWO detector test

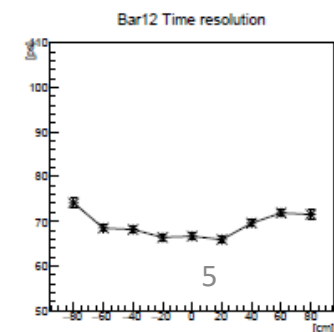
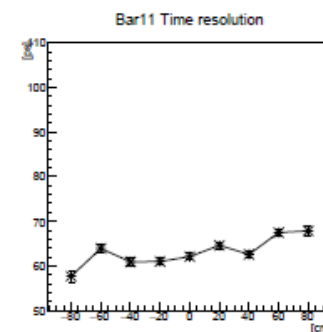
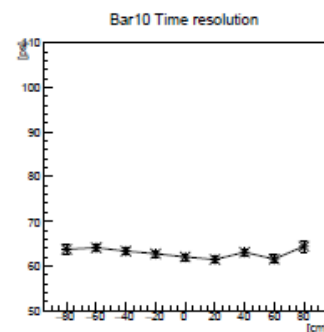
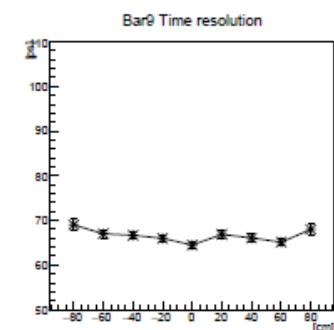
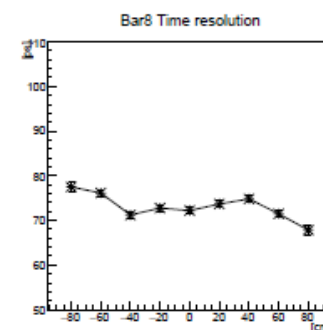
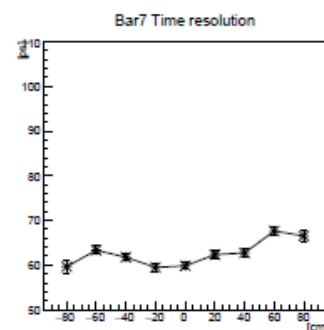
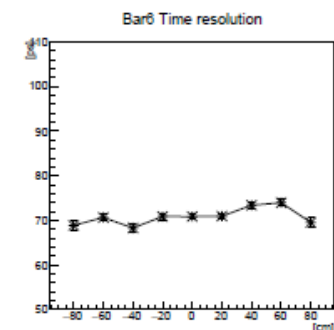
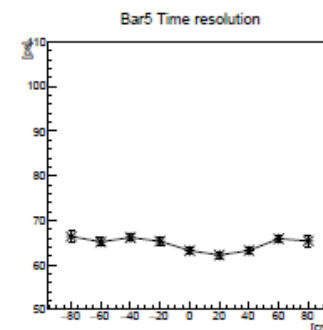
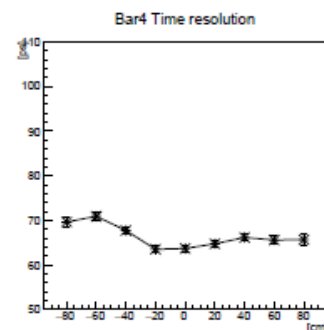
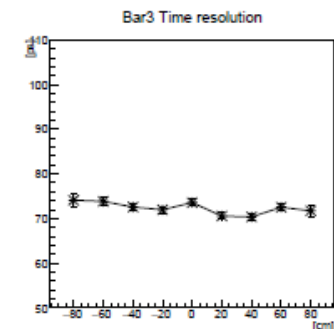
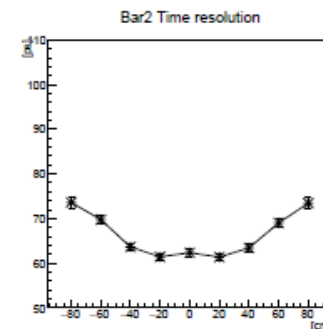
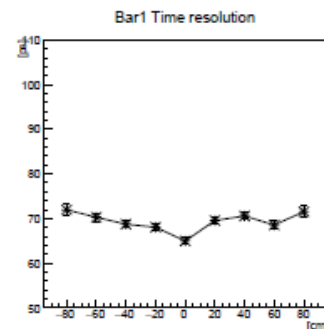
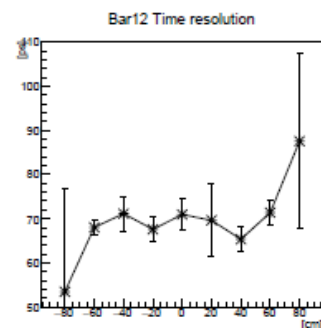
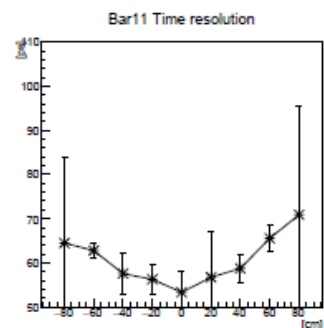
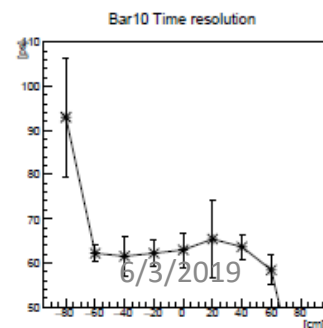
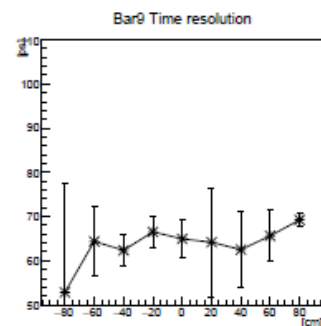
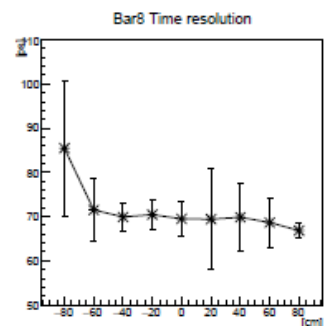
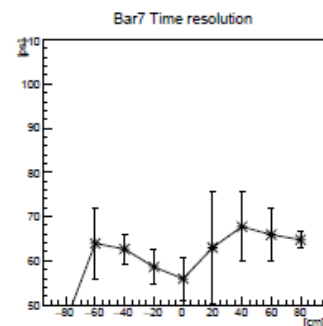
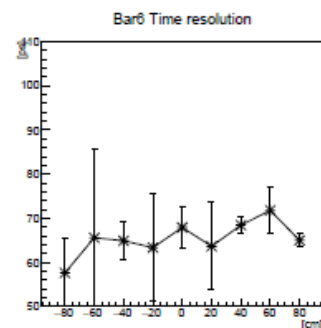
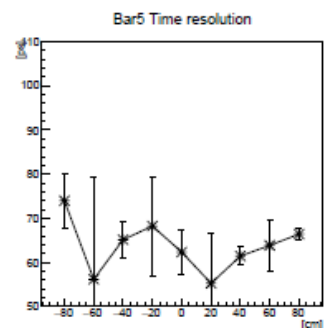
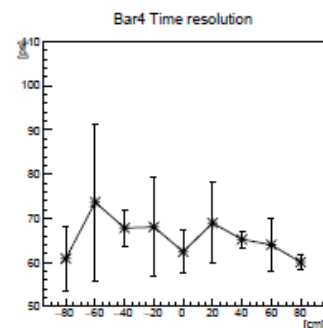
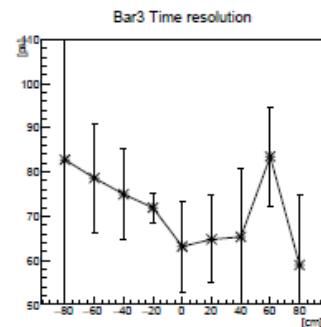
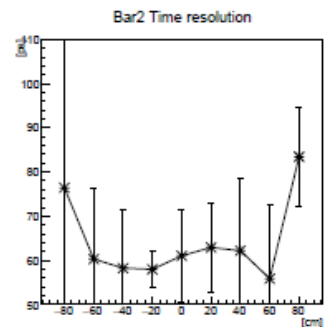
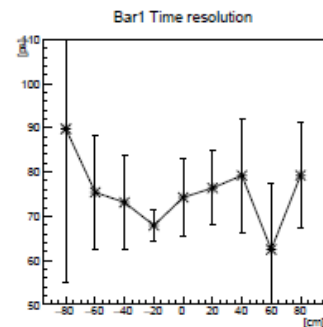


- PWO detector signal : dark pink, green
 - Integral distribution : pink, Yellow
 - Height distribution : light green, cyan
- ← Trigger for both PMT (noise is too high to see single photon event)
- ← Efficiency of 0.511 MeV looks quite low by photon transfer efficiency btw crystal and PMT
- ← By gain matching with high intensity beam, relative efficiency check will be done.
- Some leak from outside is shown (but really small amount : a few count per second)

TOF data analysis



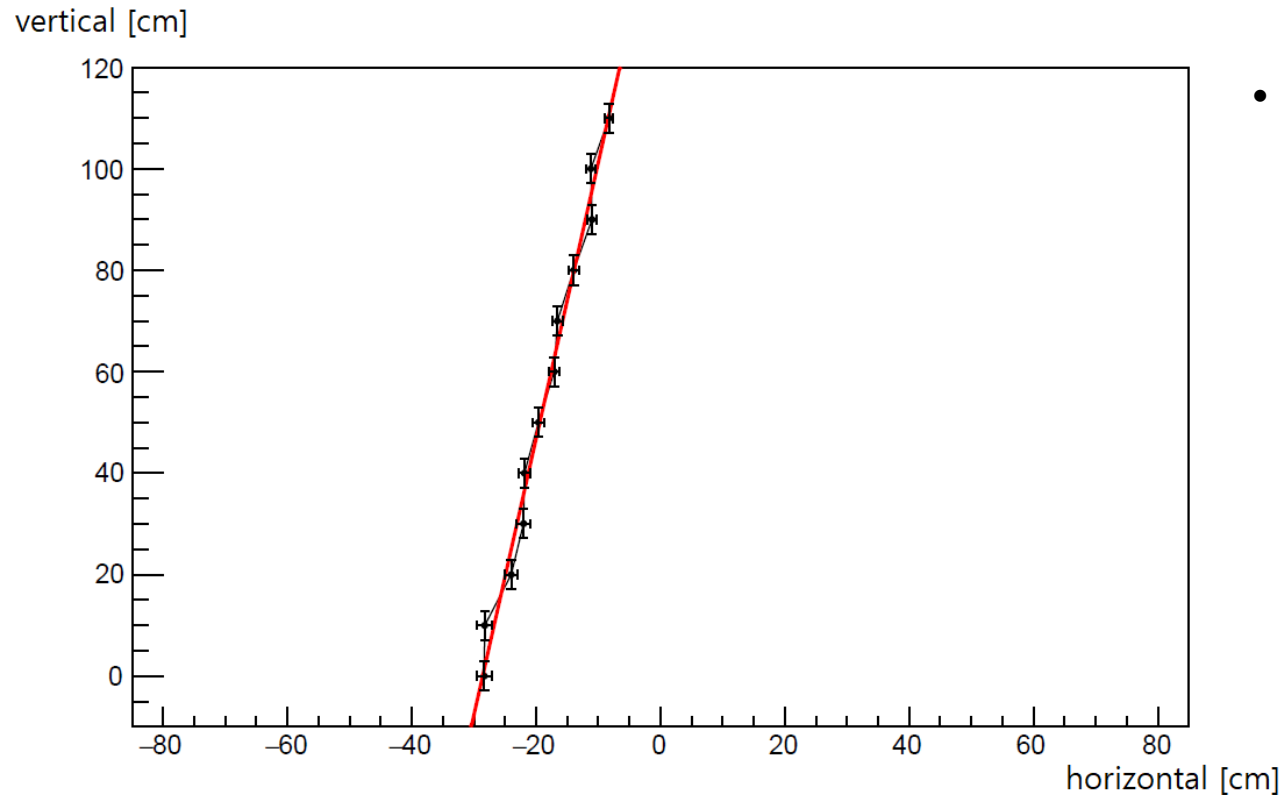
- Two gaussian (left:range(-0.4~0.4) and one gaussian (right :range(-0.3~0.3))
- No big difference shown in the results and frankly speaking, two gaussian fitting has strange sigma value for one of the gaussian...



weekly meeting

5

About paper



- Bessel inverse interpolation : (just one of the book) J.H. Pollard, A handbook of numerical and statistical techniques with examples mainly from the life sciences.
- Resolution's decimal points (matching btw time and spatial resolution)