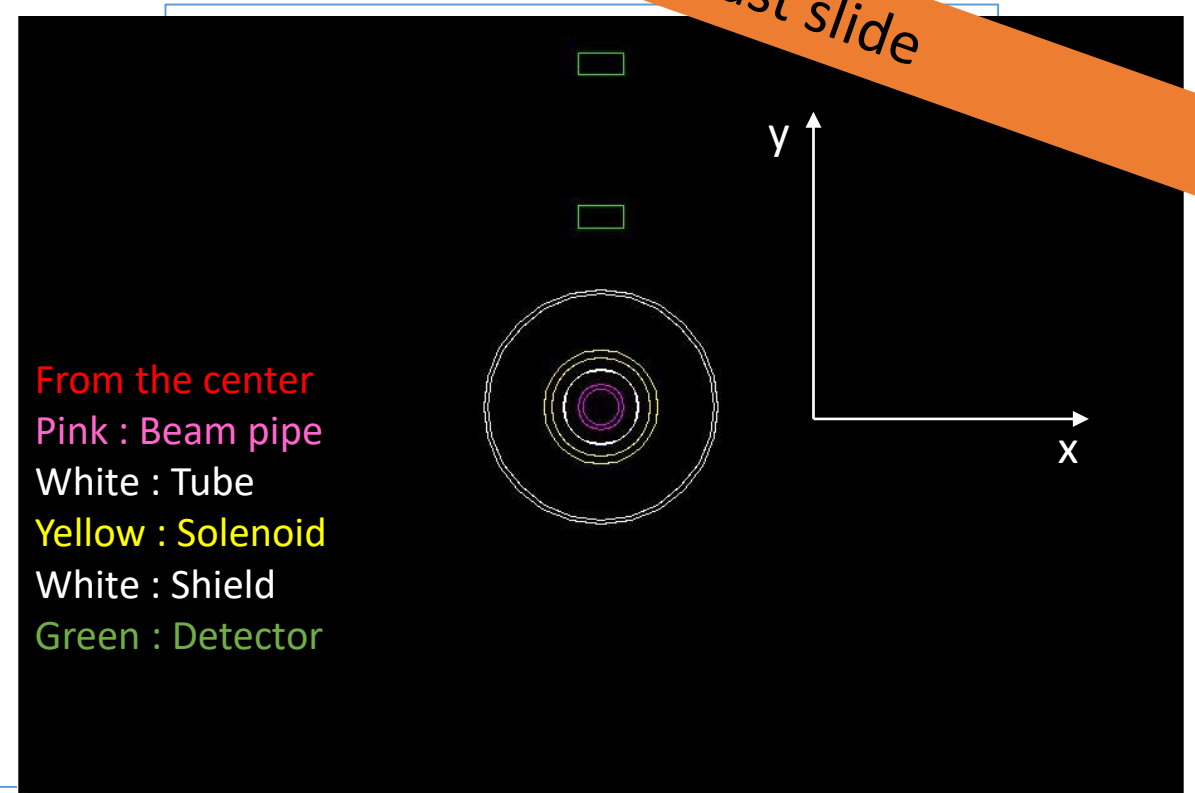
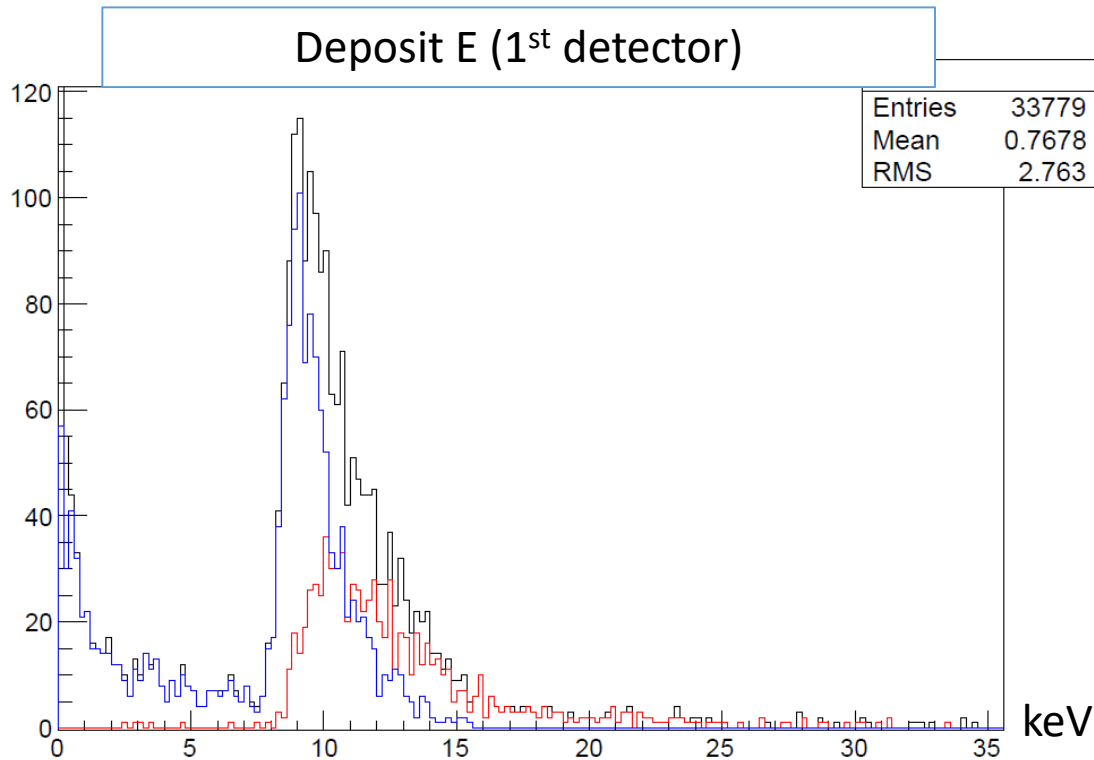


Positronium intensity measurement preparation (GBAR)

SNU

Bongho Kim

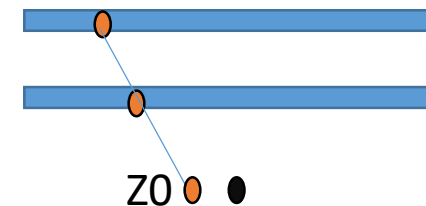
Anti-P tracker



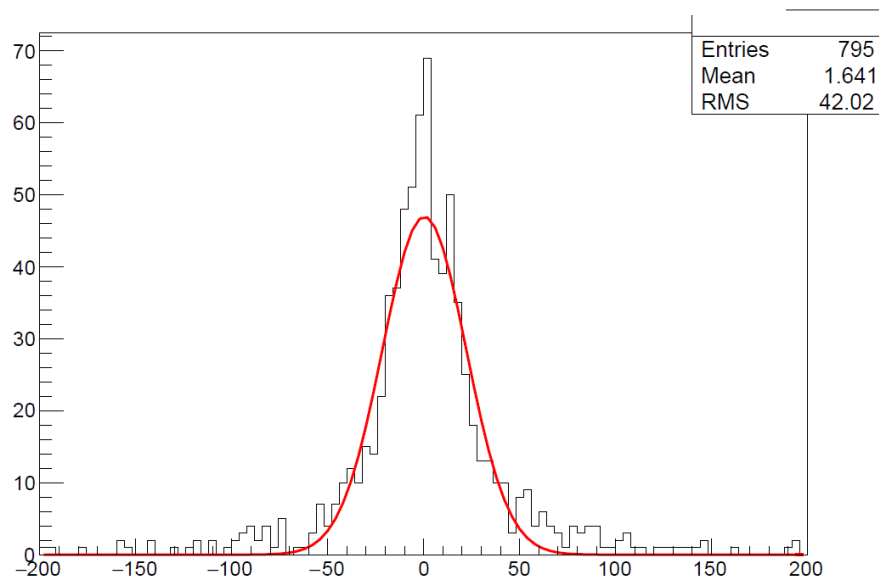
For 50,000 annihilation, $3.45\#(\pi^+)/\text{sample}$ (acceptance $\sim 2.3\%$)

Number of \ Iron shield	T (10mm)	T (20mm)	T (30mm)
Detected $\pi^{+&-}$	795	695	584
Detected $e^{+&-}$	1520	1220	973
S/N (above 8keV)	0.9(691/740)	1.0(595/571)	1.3(507/389)

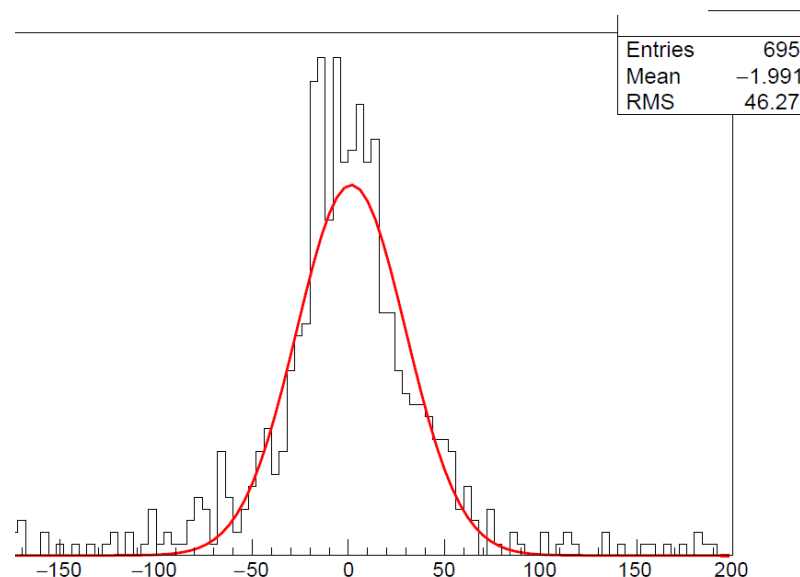
Anti-P tracker



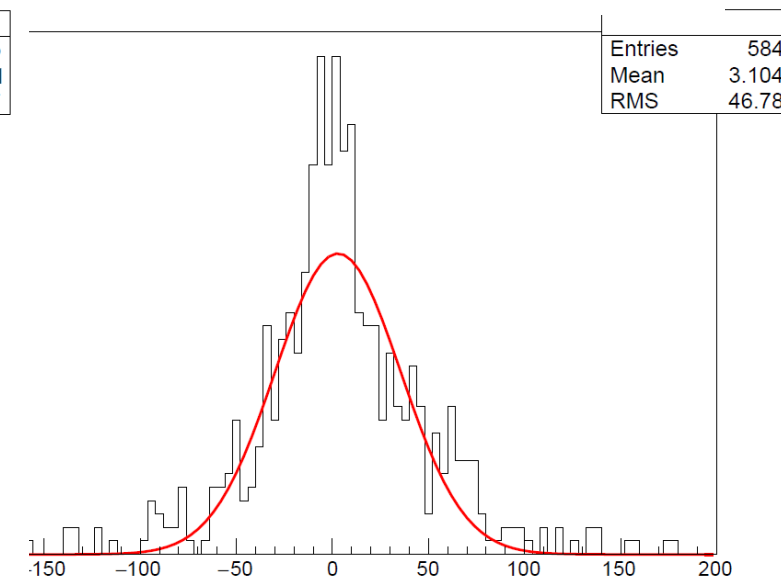
Reconst Z0 (Mshield T =10mm)



Reconst Z0 (Mshield T =20mm)



Reconst Z0 (Mshield T =30mm)



- $Z_0 = Z_2 - (Z_2 - Z_1) \times (Y_2 / (Y_2 - Y_1))$

Resolution	T (10mm)	T (20mm)	T (30mm)
RMS	42.02	46.27	46.78
Fitting σ	21.4+-1.0	28.4+-1.3	32.7+-1.8

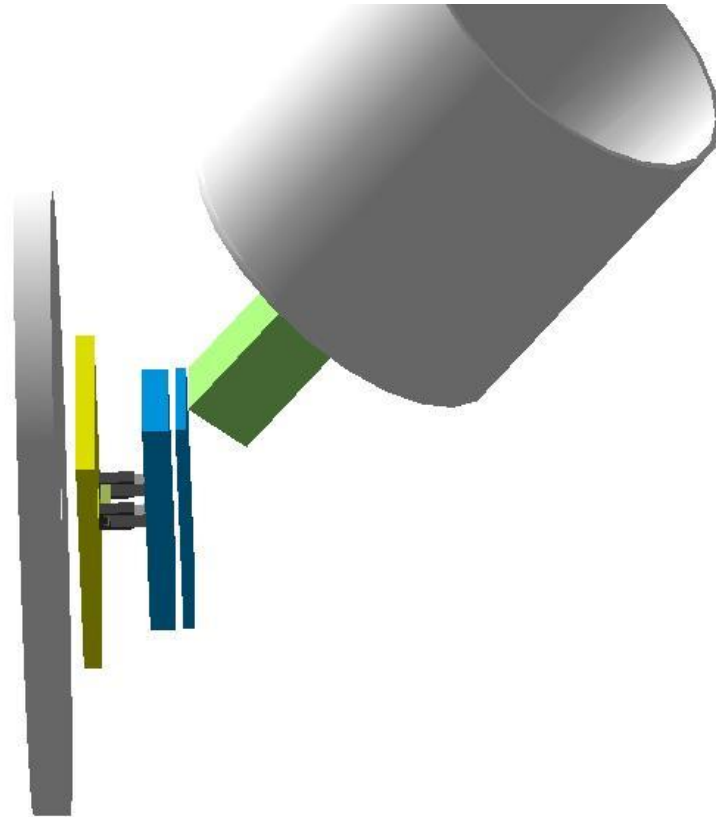
PWO detector test

- New oscilloscope with PWO detector test is ongoing

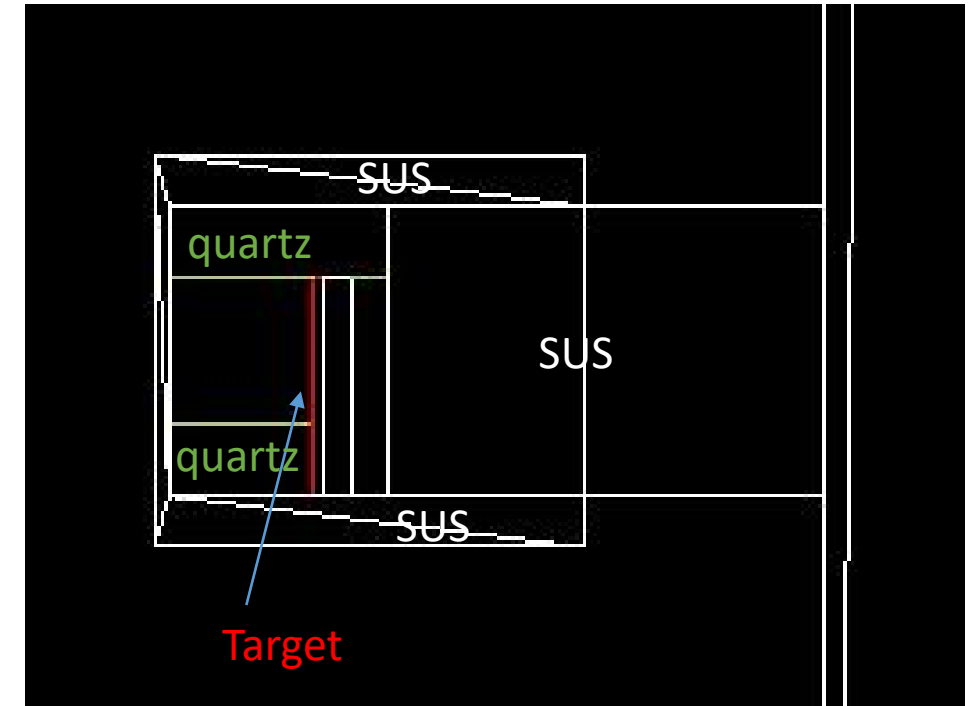
	HDO6054(new)	WR44-XI
Band width	500MHz	400MHz
Horizon bin	400ps (normal)	200ps (normal)
Vertical bit	8 (+ α)bit	8 bit
Noise	Lower	higher
Sampling	2.5GS/s	5GS/s

- Fast detector(Cherenkov radiation detector) will be tested in positron beam line and I will take data for comparison.

Positronium simulation



Target geometry



Positronium simulation

- Problem : O-Ps generated btw target and quartz go through quartz in sim and it's fixed.
- Problem : Too many background shown with W block option compared with survived signal (changed geometry)
 - BG from final focusing obstacle (hole size : 2mmx15mm, beam size : 1mmx3mm)
 - Need to optimize method to measure positronium property somehow..

Status in CEA Saclay

- Antion chamber preparation

Focusing lens preparation

- Tried to install but beamline chamber for lens has wrong size
 - Lens holder was cut smaller and re-install will be done.
 - After installation, baking then HV test will be done.