

K-Koto Meeting

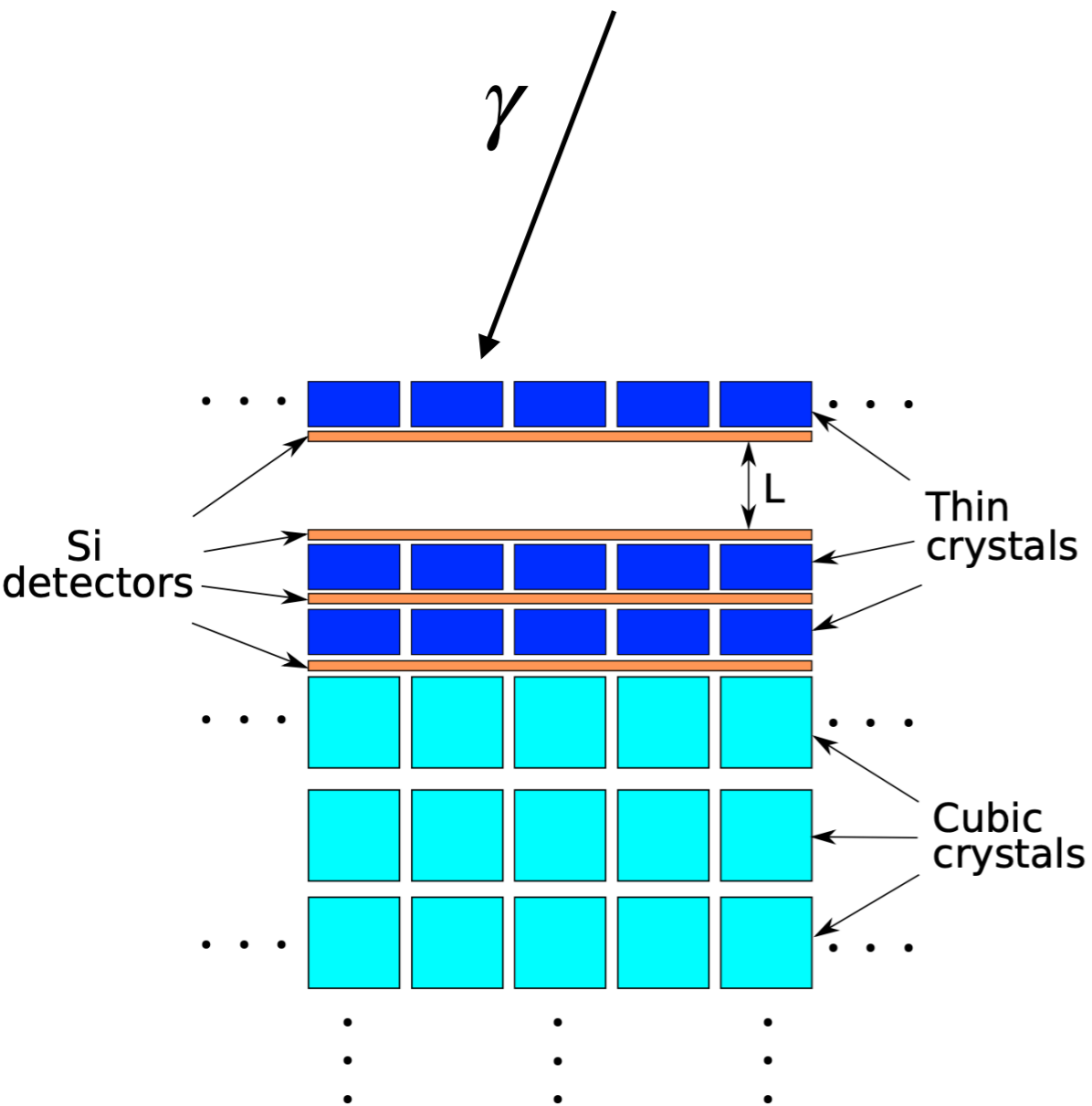
2020/10/13

YoungJun Kim

TIC design

Tracker-In-Calorimeter (TIC) : a calorimetric approach to tracking gamma rays in space experiments

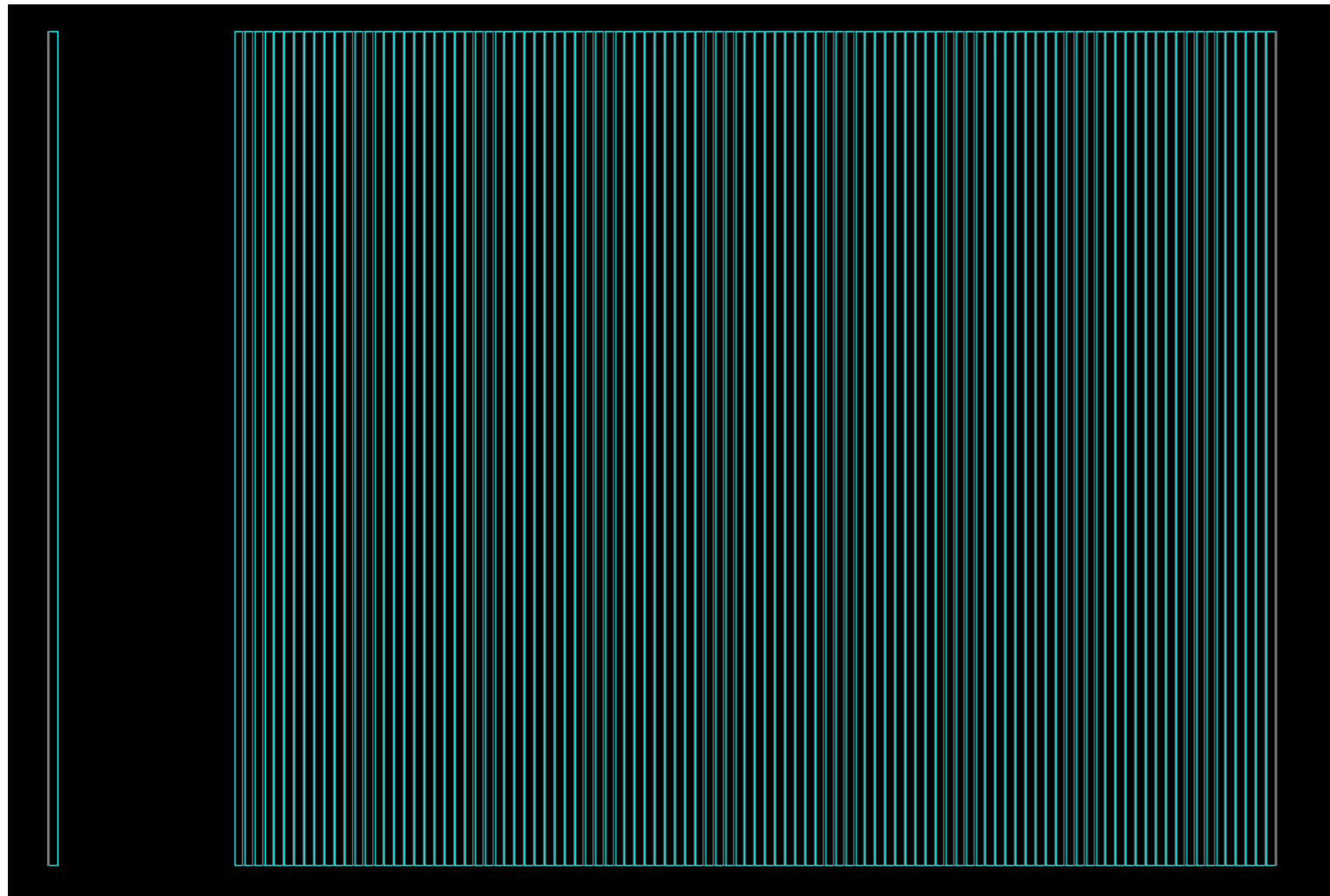
O. Adriani et al 2020 JINST **15** P09034




Tracker(Si detectors)
+ Calorimeter(LYSO Crystals)

- **Select events that pair creation occurs at the first converter layer.**
- Weighted mean(x,y) conserves the incident direction, but have ~multiple scattering deviation.

A new design for gamma tracking

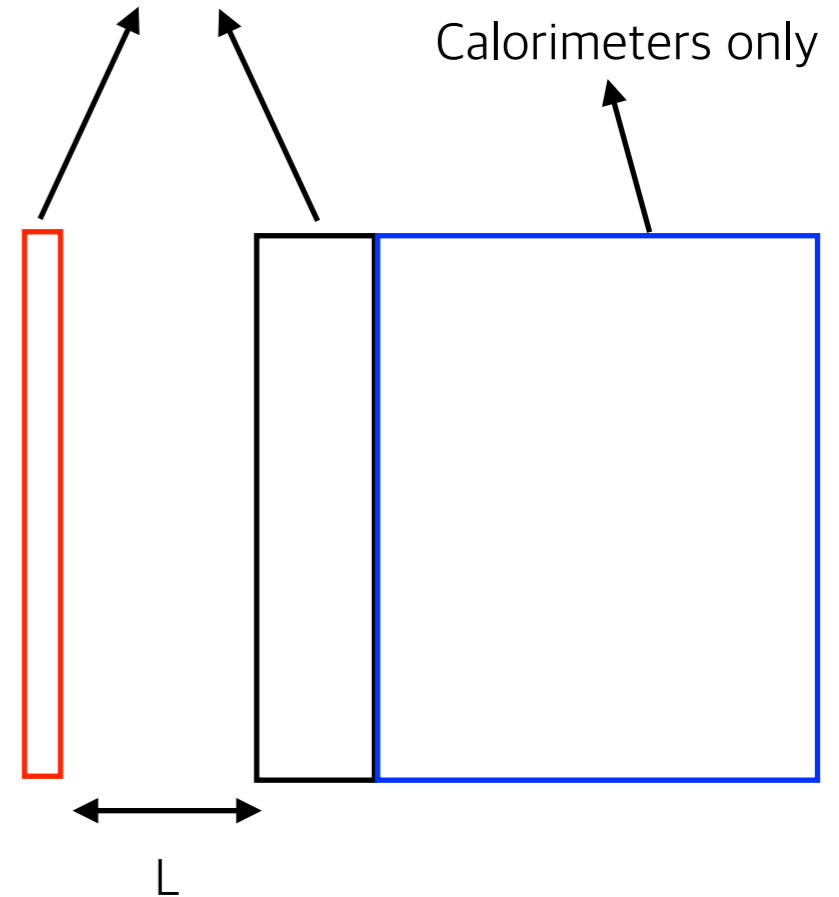



L = 10cm

1mm Lead
5mm Scintillator
x 105 layers

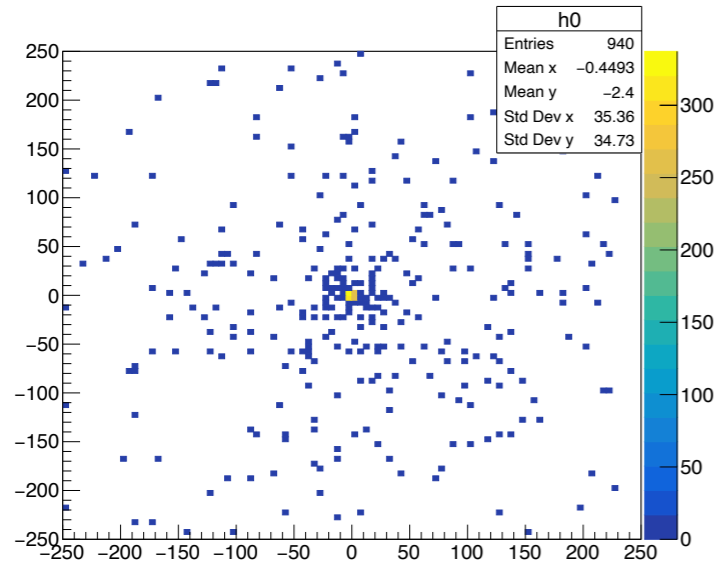
few layers tracker

Calorimeters only

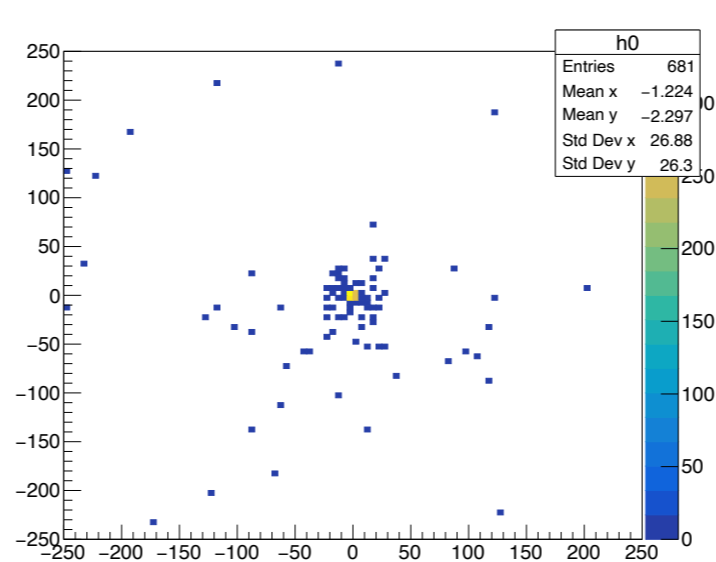


Quick result

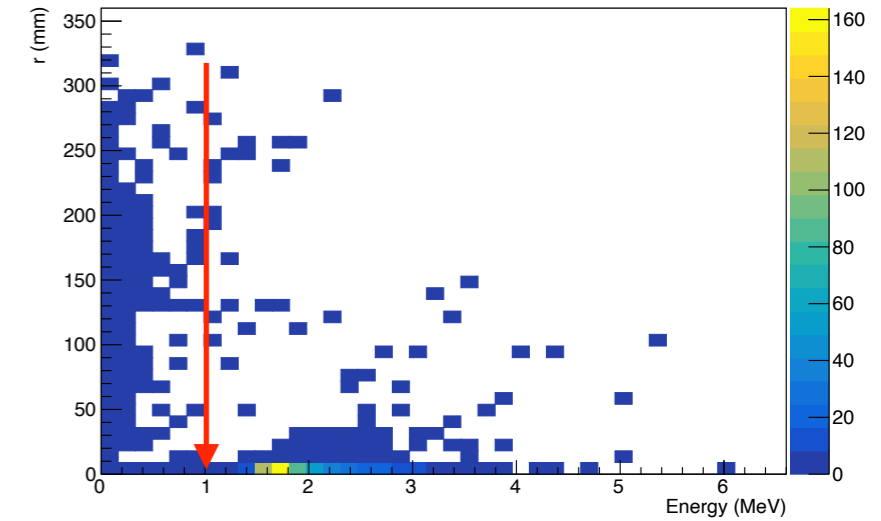
layer0, no energy cut



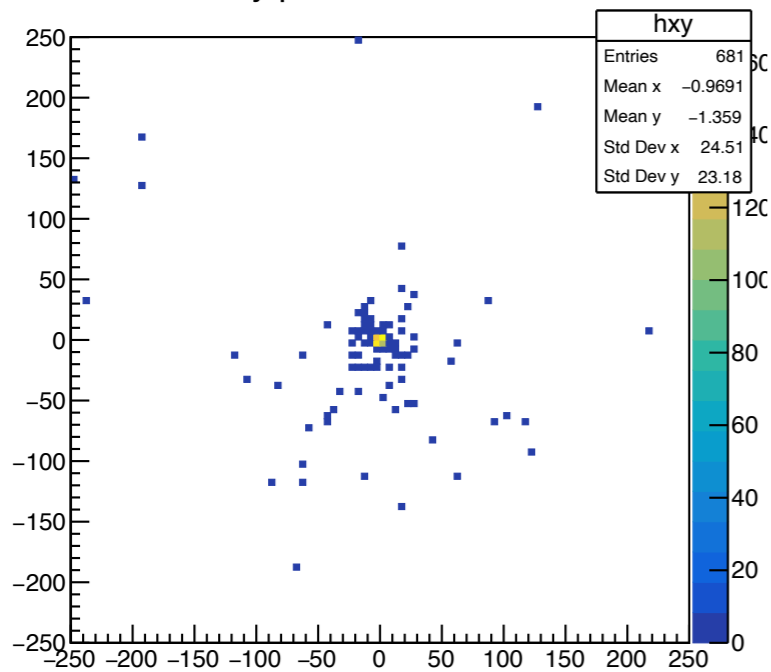
layer0, E > 1 MeV



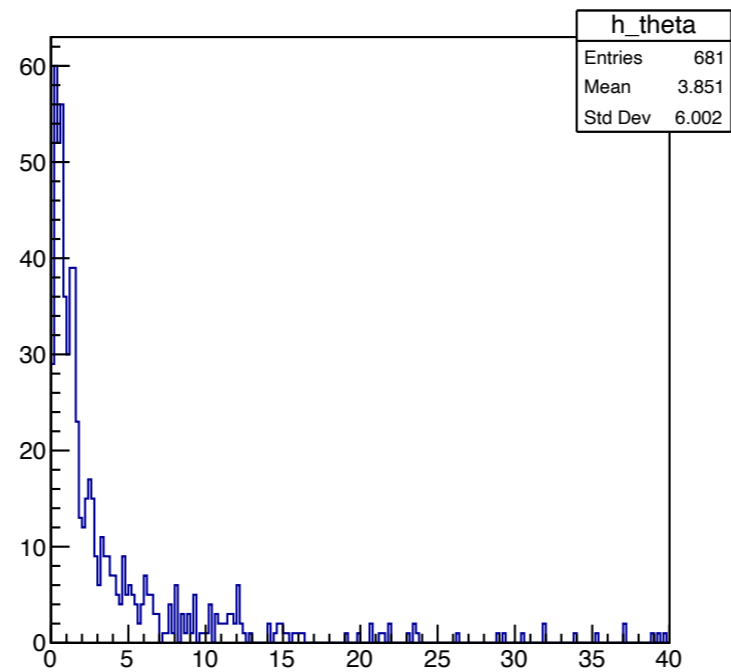
layer0, r vs. E



xy position at z = 0



theta



- Front four layers are used
- E > 1 MeV
- Simple Fit with energy weighted x,y
 - xz, yz plane respectively
- Error $\propto 1/\sqrt{E}$
- 681/5000 events survived