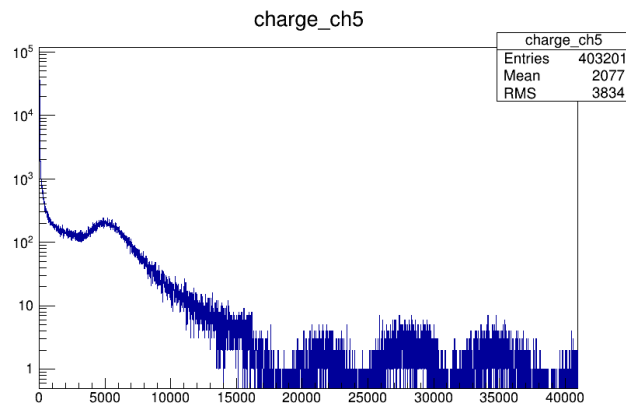
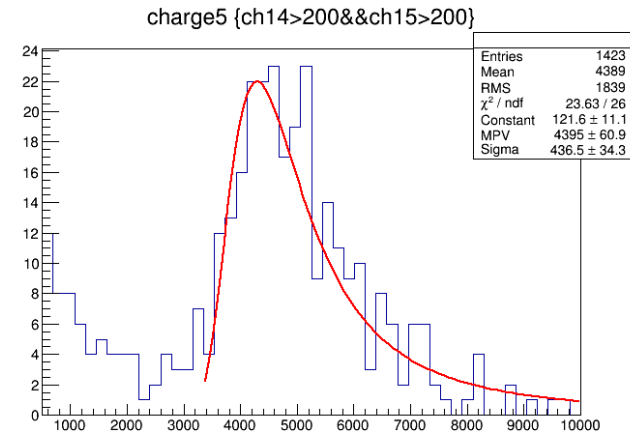
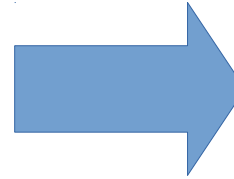


# PWO crystal Light Yield measurements in prototype with cosmic rays

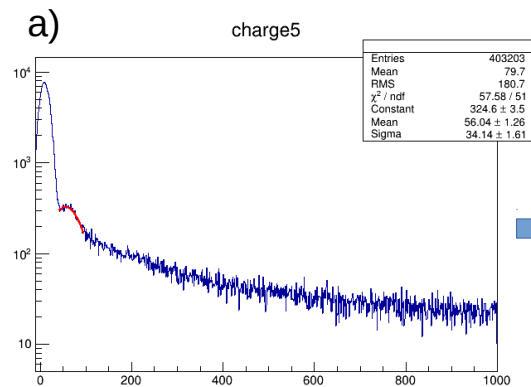


Pic.1 Integral (charge) in central segment all tracks

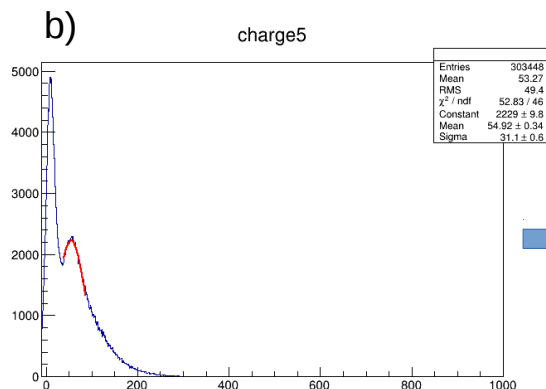
Strait tracks  
cut



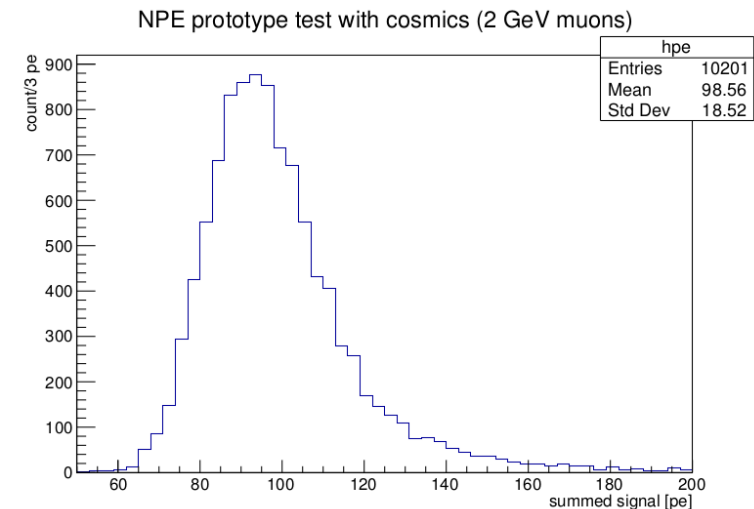
Pic.2 Integral (charge) in central segment (strait tracks)



$$N_{pe}=78.42\pm 2.07$$



$$N_{pe}=80.025\pm 1.21$$



Pic.4 GEANT4 simulation by Vardan

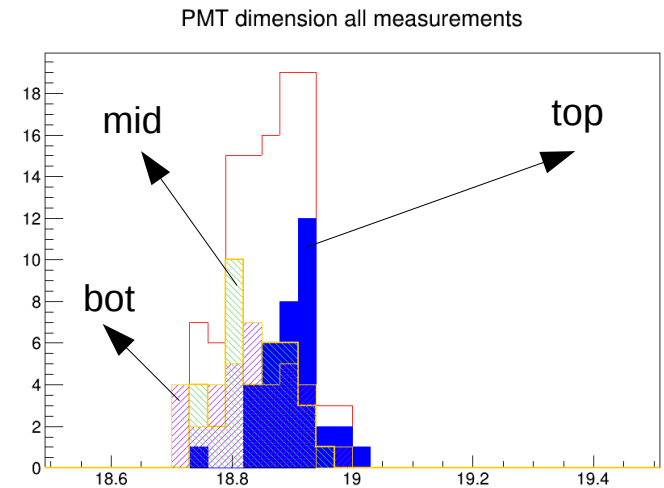
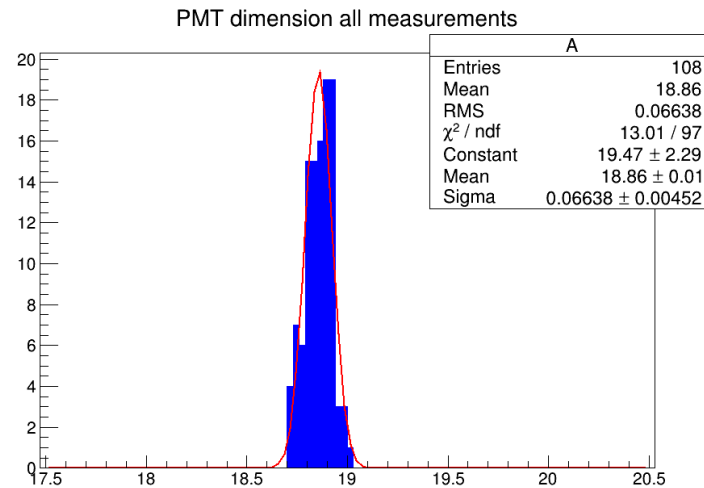
Straight muon track deposited in crystal ~20MeV

Method	Light Yield(pe/MeV)	Note
- Na22 source	16.1	(18C, big PMT)
- cosmics	3.921±0.104	(sp.e. by cross talk)
- cosmics (b)	4.001±0.006	(sp.e. by LED meas)
-simulation	4.928	(total spectra)
-simulation	4.3	(event by event)

Pic.3 Single electron amplitude measurements:  
a) Cross talks b) LED measurements (in the hallD)

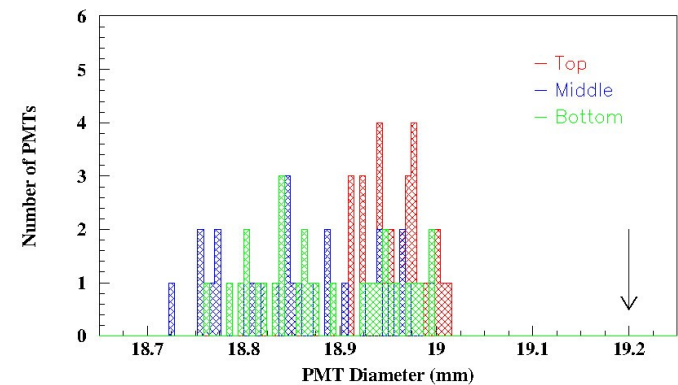
## PMT dimension measurements

36 PMT`s measured with HeightGage Tool  
Each PMT measured in 3 points (top,mid,bot)  
Systematic errors is ~25  $\mu$ m



$$\text{PMT } \varnothing = (18.86 \pm 0.066) \text{ mm}$$

30 PMT`s measurements with micrometer by Hamlet  
Each PMT measured in 1 point  
Systematic errors is ~25  $\mu$ m



# Crystals visual inspection and dimension measurements (update)

40 more crystals (30 from “newest” package 3)

20 crystals (all from package 3) have some major defects

- 3 crystals have smaller size (20.1mm)

- 17 visual defects (old/scratch labels, lot of dots structures in the volume, chemical film and etc)

Crystals dimensions

