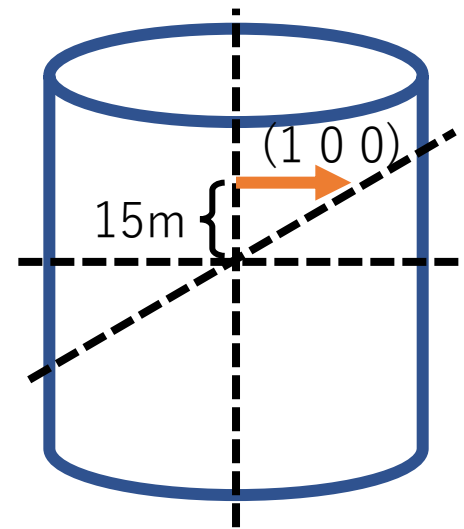
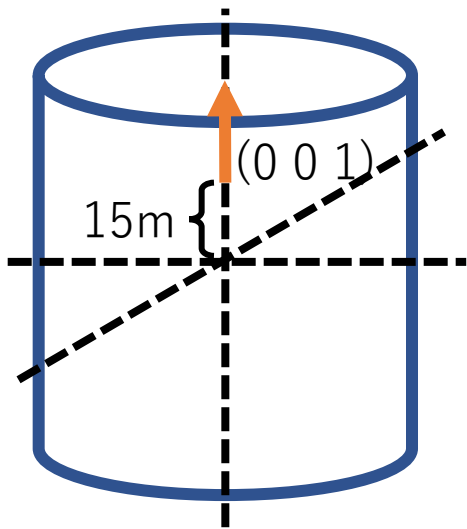


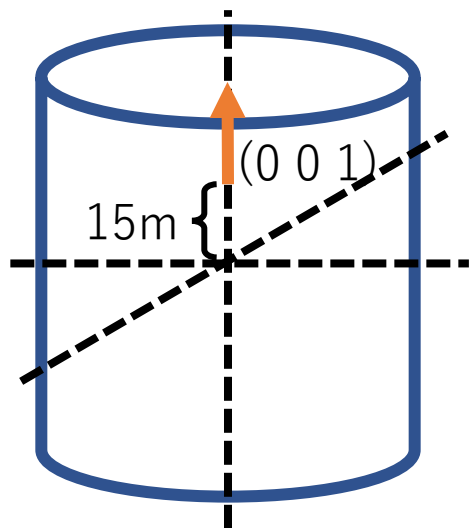
Status Report

Isao Sashima
July 3 , 2020
mPMT meeting

- ran simulations under different conditions (figures below)
- changing the position and angle of the irradiation point in the Hyper-K
- along the above conditions, simulated with/without a reflector

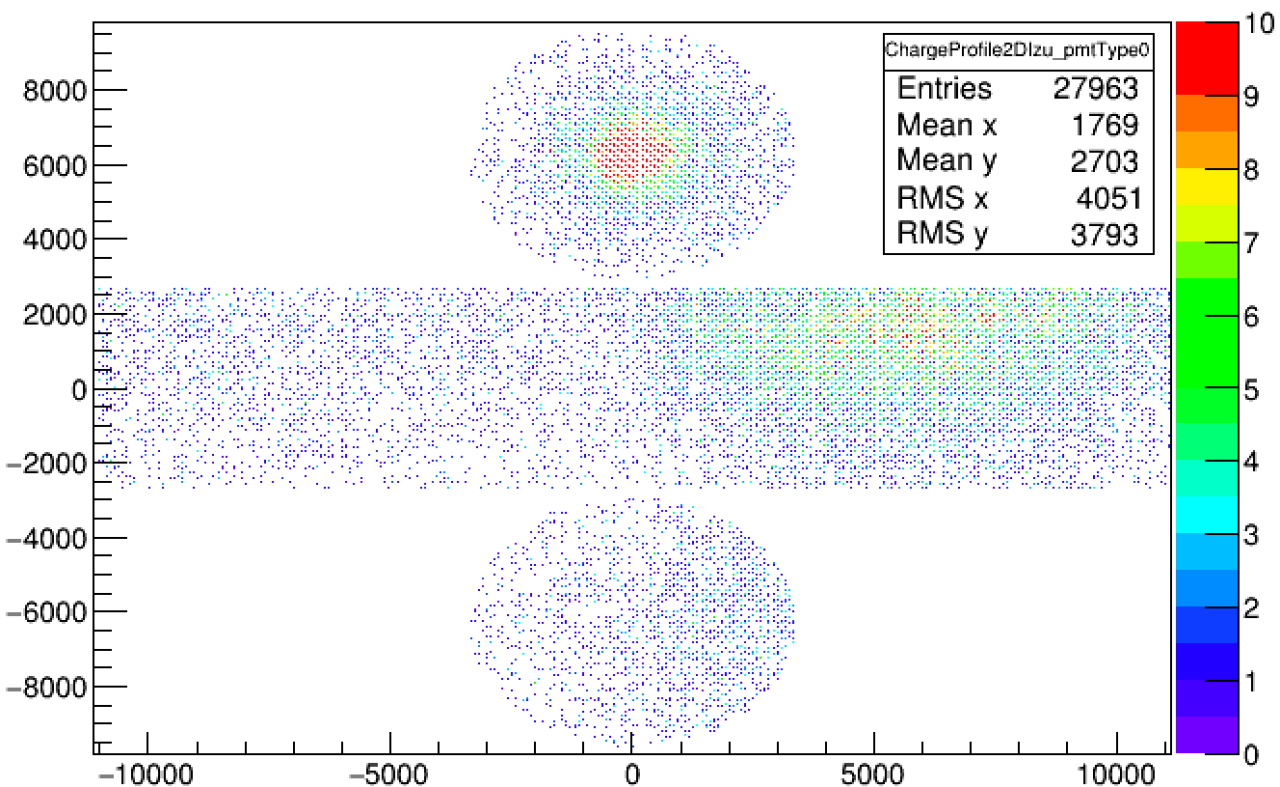
→examined their characteristics under each conditions





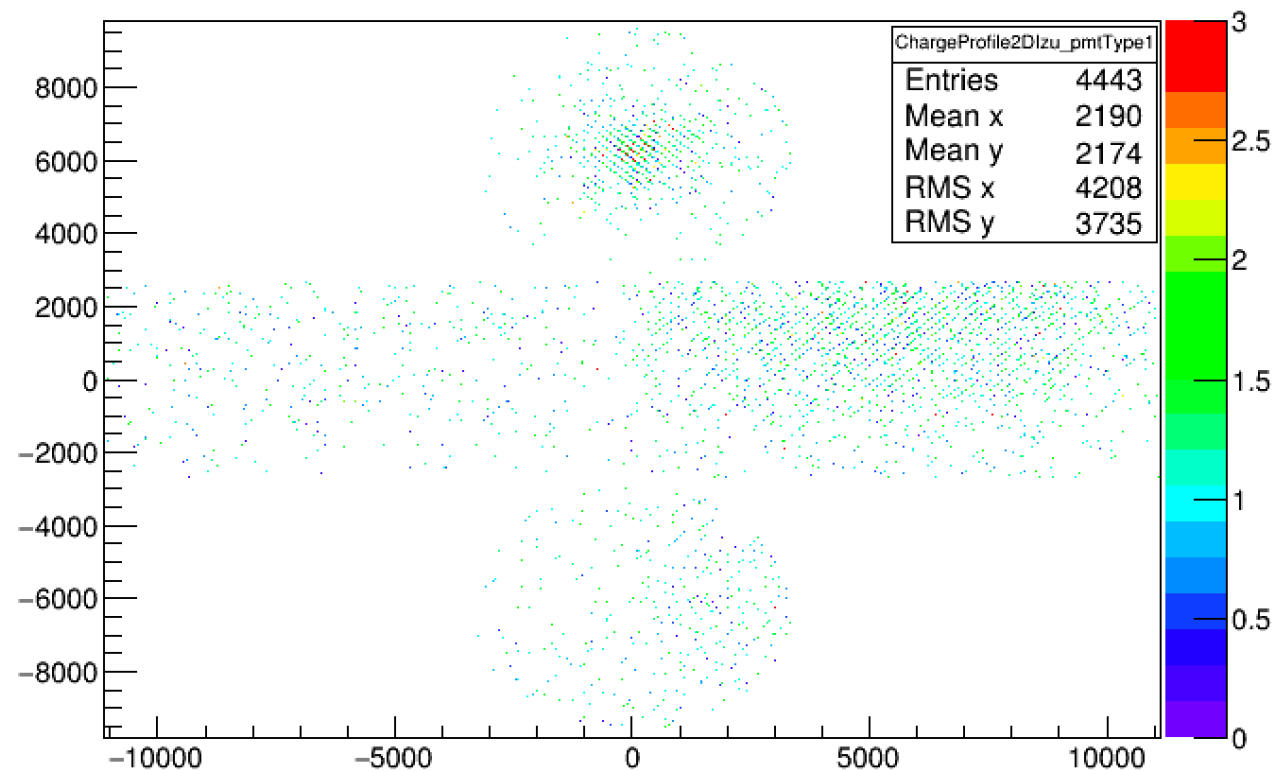
with a reflector
 plotDigitized : true
 Took only triggered events (Mode 0)
 Setdarkwindow 0

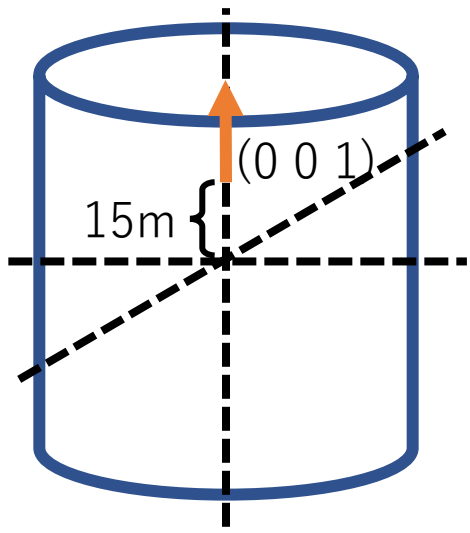
B&L



```
193 /mygen/generator laser
194 /gps/particle opticalphoton
195 /gps/energy 2.58 eV
196 /gps/direction 0 0 1
197 /gps/position 0 0 15 m
198 /gps/number 10000
199 # /gps/ang/type iso
200 # /gps/ang/mintheta 0 deg
201 # /gps/ang/maxtheta 180 deg
202 # /gps/ang/minphi 0 deg
203 # /gps/ang/maxphi 360 deg
204 /gps/verbose 0
```

mPMT





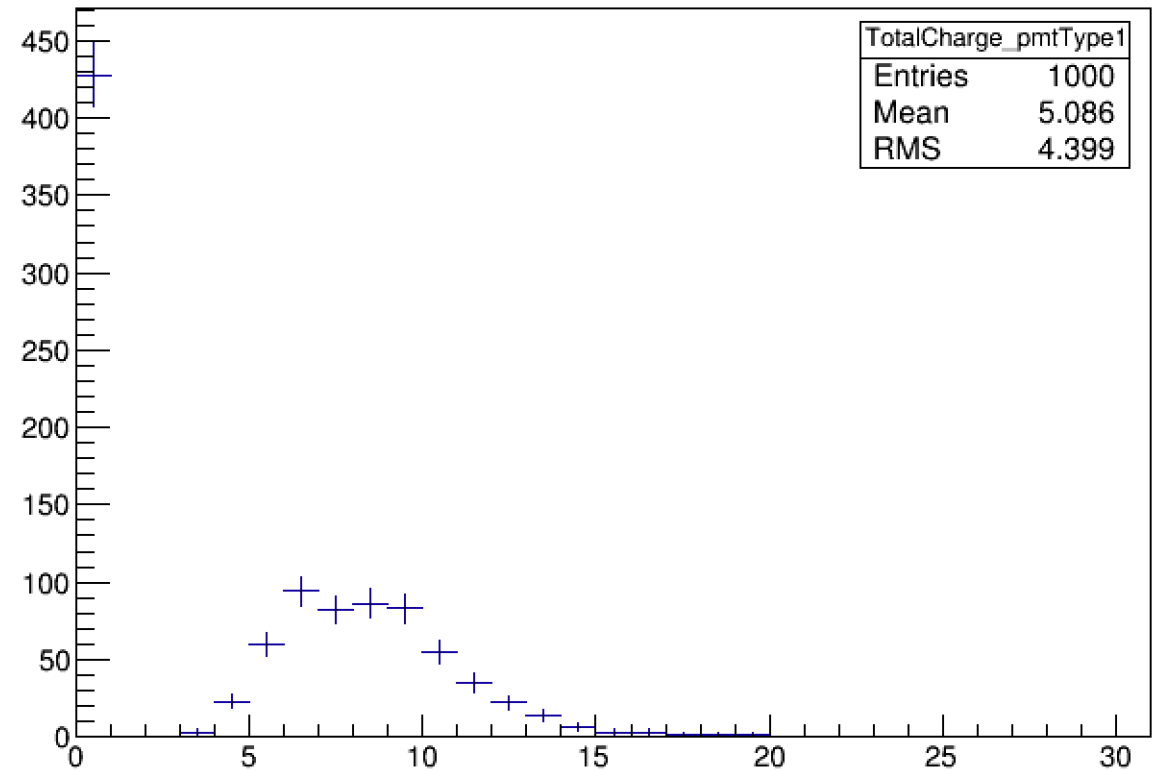
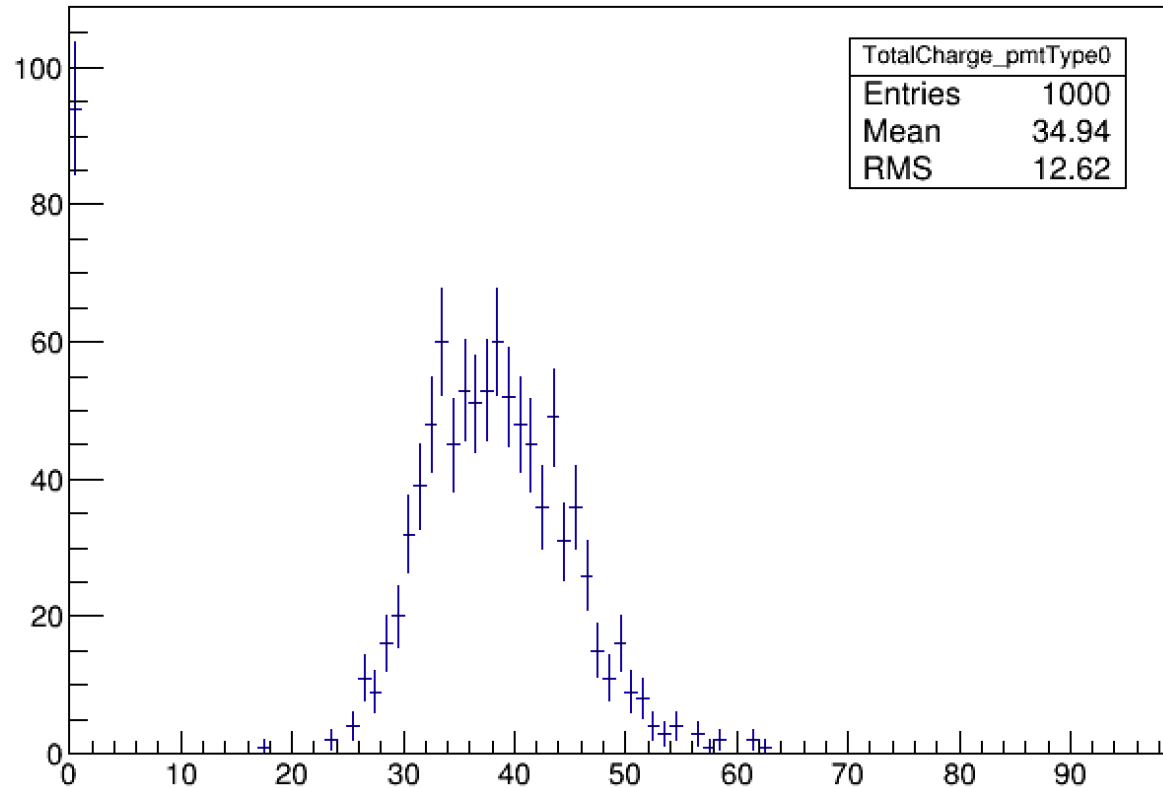
with a reflector
 plotDigitized : true
 Took only triggered events (Mode 0)
 Setdarkwindow 0

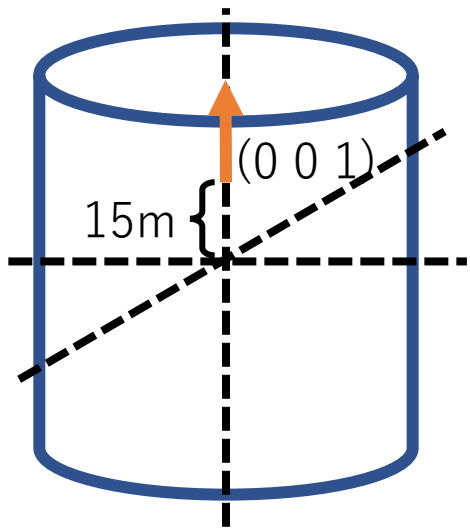
Total Charge

```
193 /mygen/generator laser
194 /gps/particle opticalphoton
195 /gps/energy 2.58 eV
196 /gps/direction 0 0 1
197 /gps/position 0 0 15 m
198 /gps/number 10000
199 # /gps/ang/type iso
200 # /gps/ang/mintheta 0 deg
201 # /gps/ang/maxtheta 180 deg
202 # /gps/ang/minphi 0 deg
203 # /gps/ang/maxphi 360 deg
204 /gps/verbose 0
```

B&L

mPMT





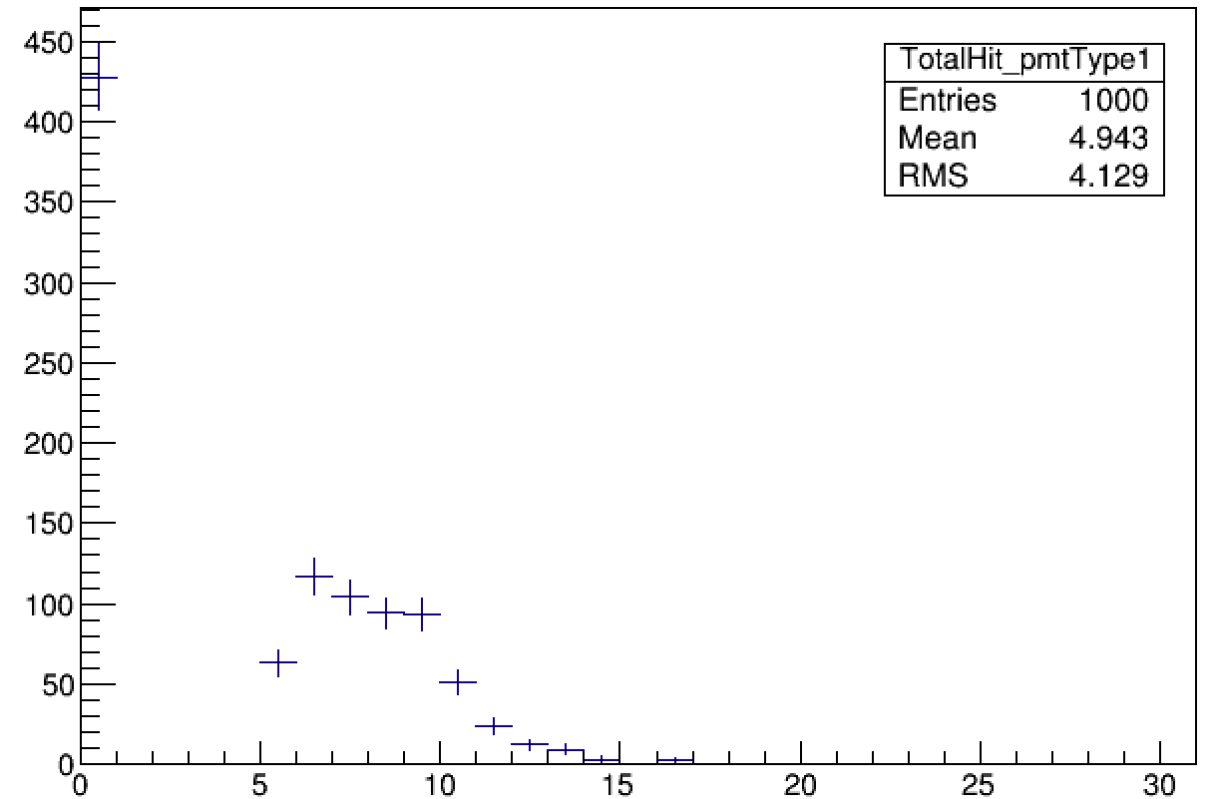
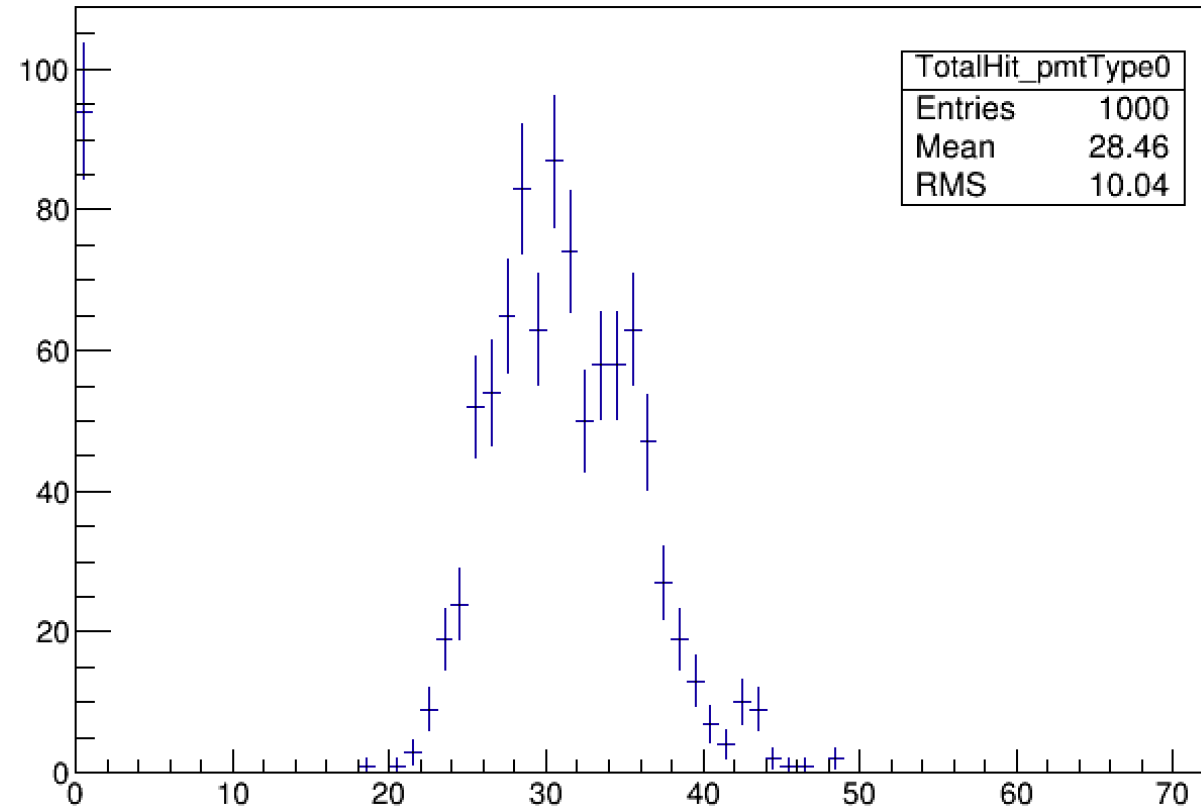
with a reflector
 plotDigitized : true
 Took only triggered events (Mode 0)
 Setdarkwindow 0

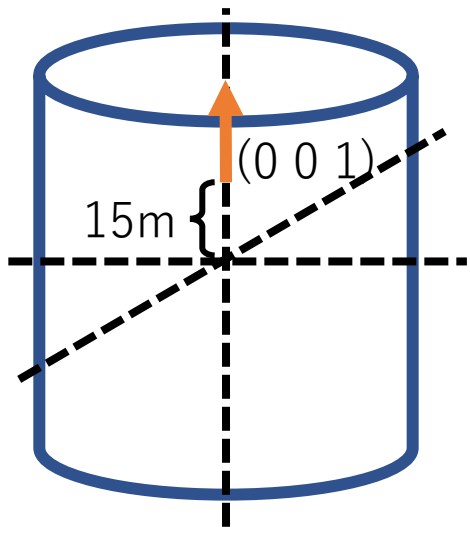
```
193 /mygen/generator laser
194 /gps/particle opticalphoton
195 /gps/energy 2.58 eV
196 /gps/direction 0 0 1
197 /gps/position 0 0 15 m
198 /gps/number 10000
199 # /gps/ang/type iso
200 # /gps/ang/mintheta 0 deg
201 # /gps/ang/maxtheta 180 deg
202 # /gps/ang/minphi 0 deg
203 # /gps/ang/maxphi 360 deg
204 /gps/verbose 0
```

Total Hit

B&L

mPMT



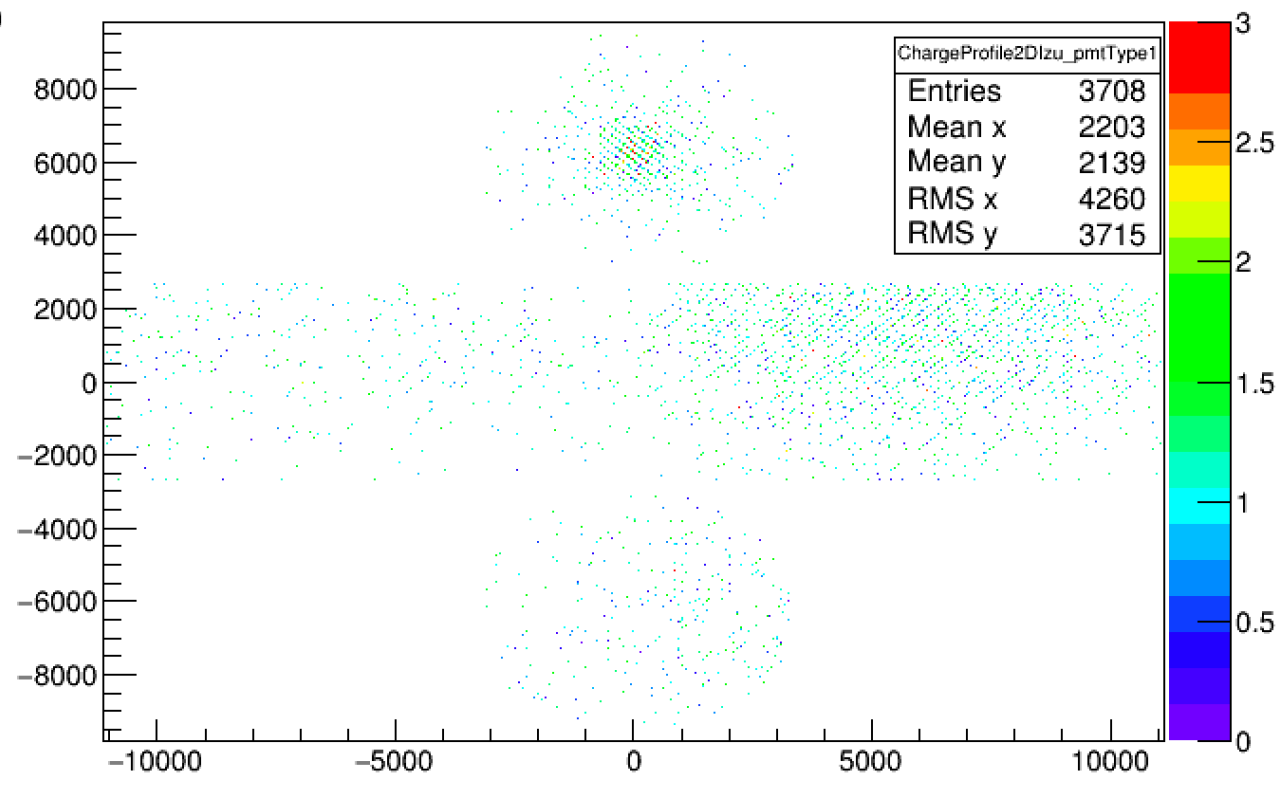
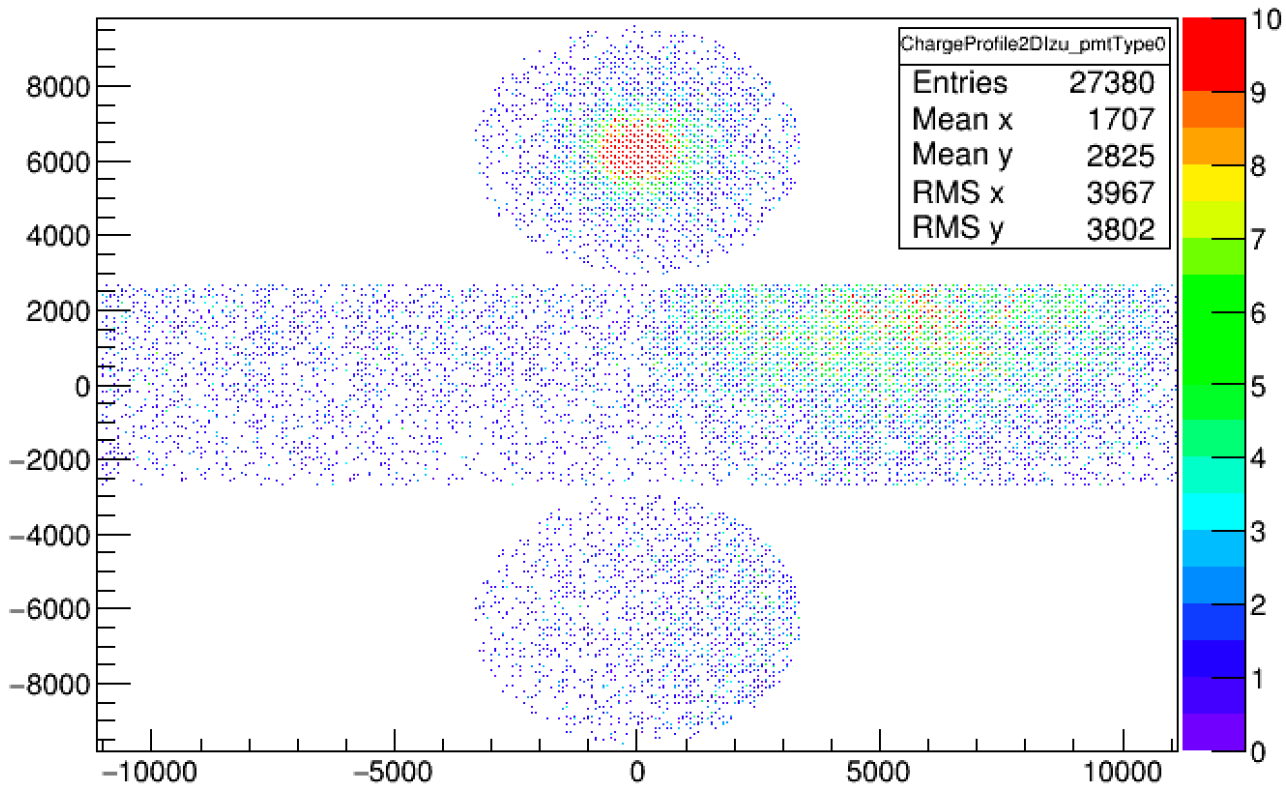


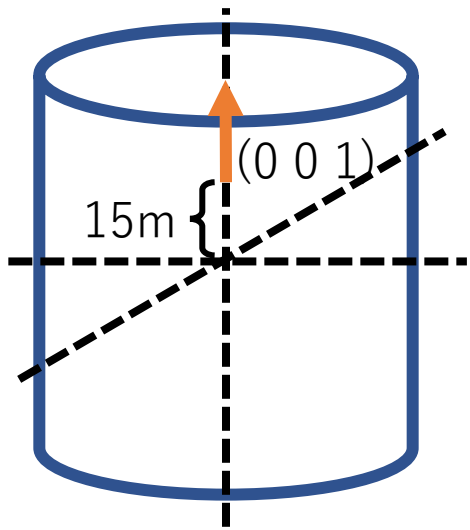
without a reflector
 plotDigitized : true
 Took only triggered events (Mode 0)
 Setdarkwindow 0

B&L

```
193 /mygen/generator laser
194 /gps/particle opticalphoton
195 /gps/energy 2.58 eV
196 /gps/direction 0 0 1
197 /gps/position 0 0 15 m
198 /gps/number 10000
199 # /gps/ang/type iso
200 # /gps/ang/mintheta 0 deg
201 # /gps/ang/maxtheta 180 deg
202 # /gps/ang/minphi 0 deg
203 # /gps/ang/maxphi 360 deg
204 /gps/verbose 0
```

mPMT



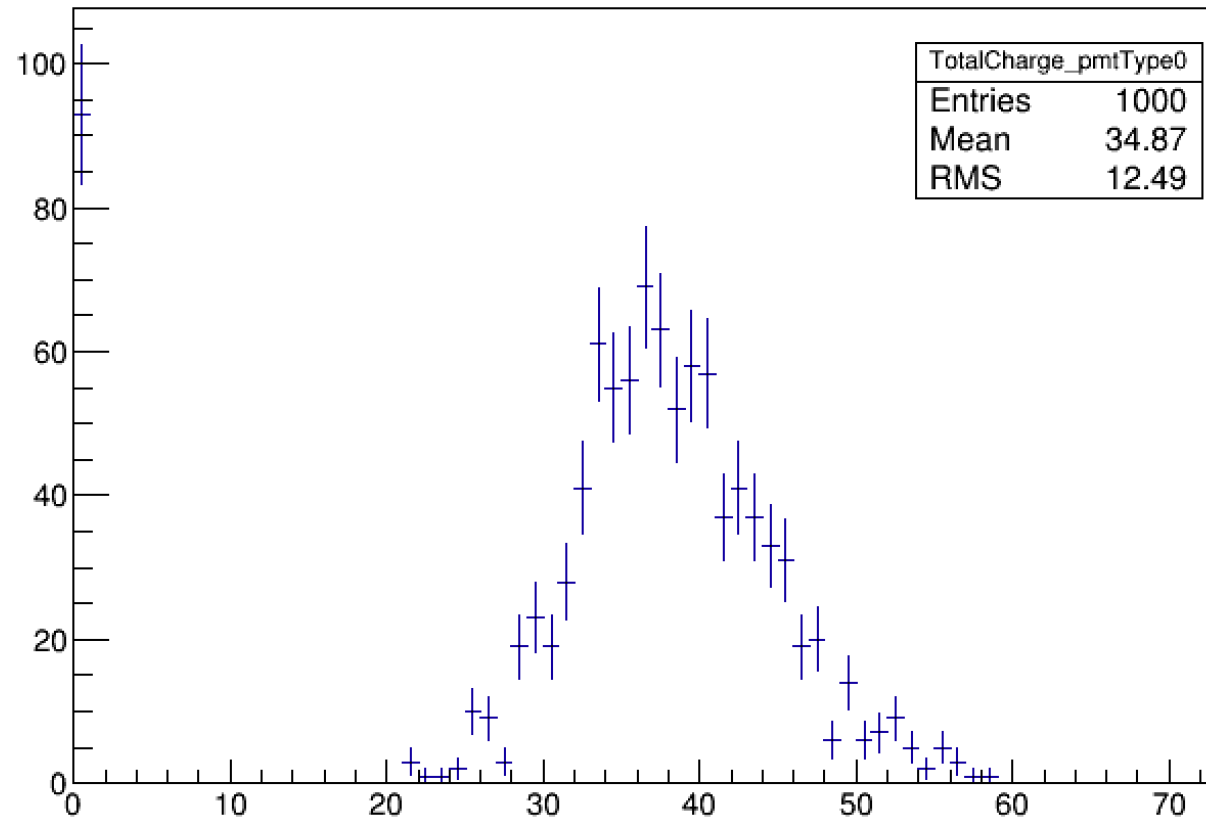


without a reflector
 plotDigitized : true
 Took only triggered events (Mode 0)
 Setdarkwindow 0

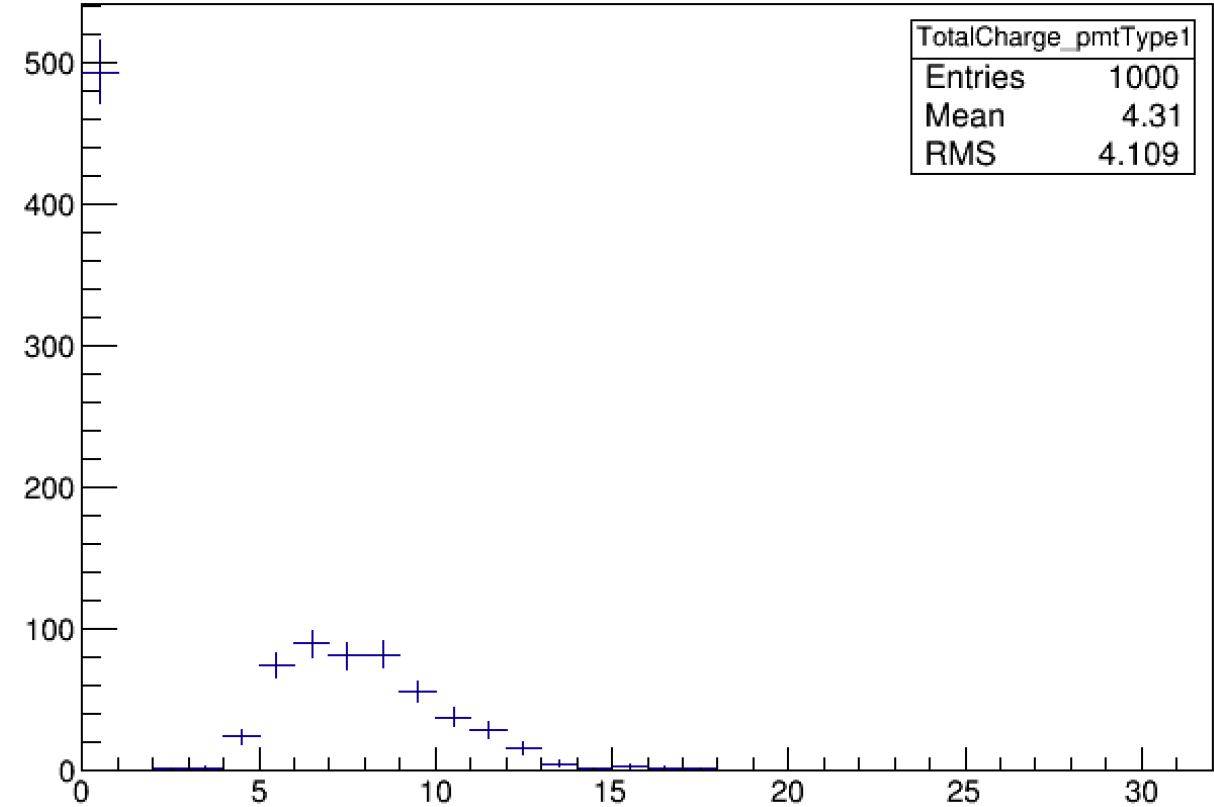
```
193 /mygen/generator laser
194 /gps/particle opticalphoton
195 /gps/energy 2.58 eV
196 /gps/direction 0 0 1
197 /gps/position 0 0 15 m
198 /gps/number 10000
199 # /gps/ang/type iso
200 # /gps/ang/mintheta 0 deg
201 # /gps/ang/maxtheta 180 deg
202 # /gps/ang/minphi 0 deg
203 # /gps/ang/maxphi 360 deg
204 /gps/verbose 0
```

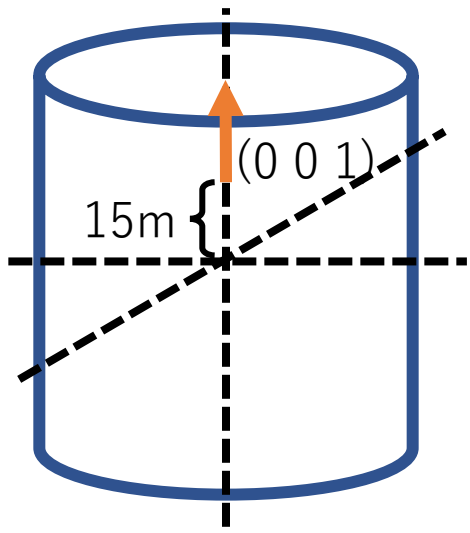
Total Charge

B&L



mPMT



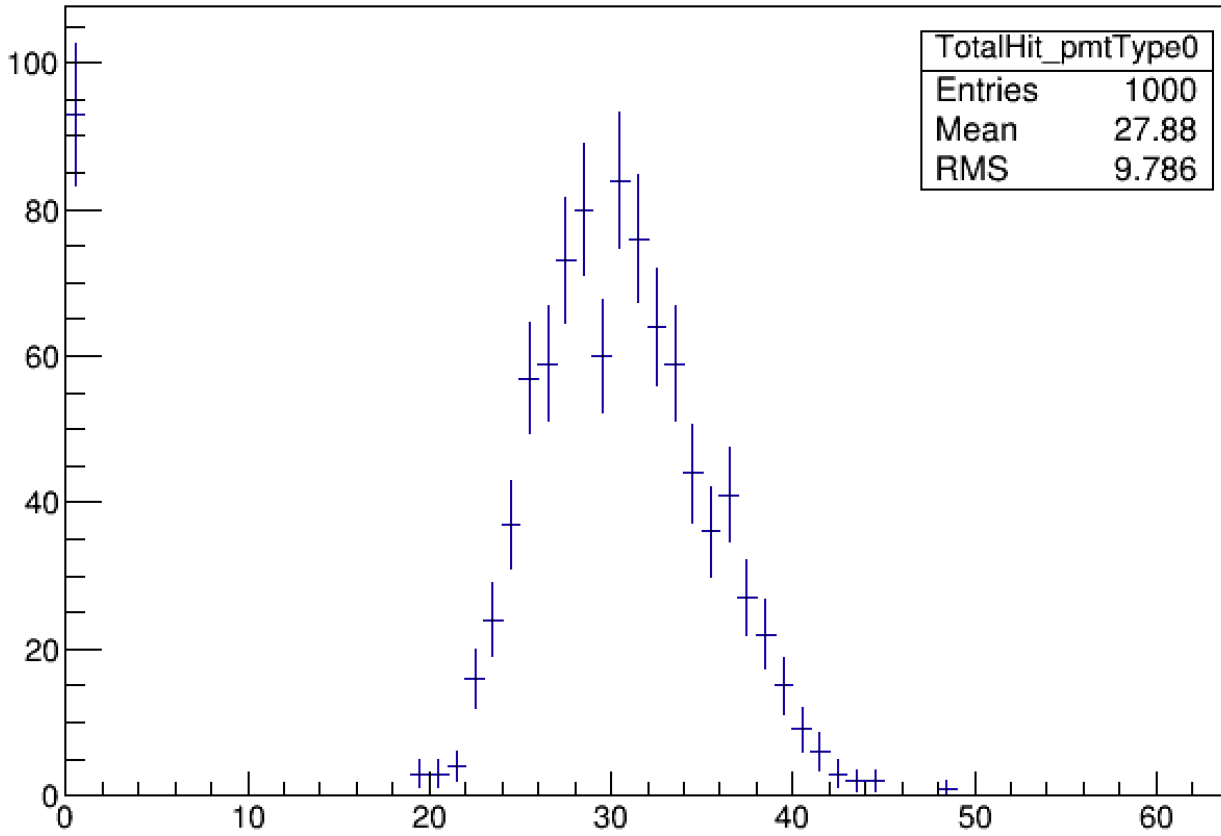


without a reflector
 plotDigitized : true
 Took only triggered events (Mode 0)
 Setdarkwindow 0

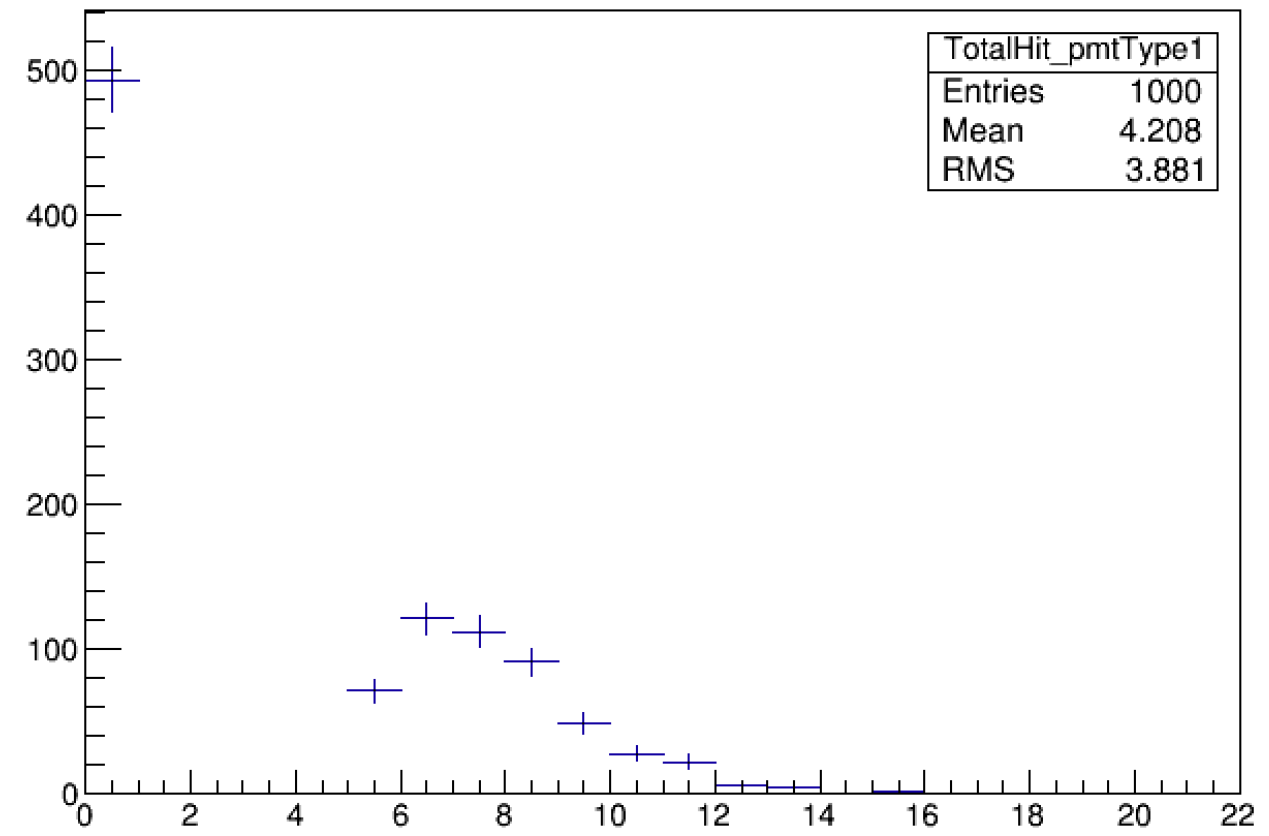
Total Hit

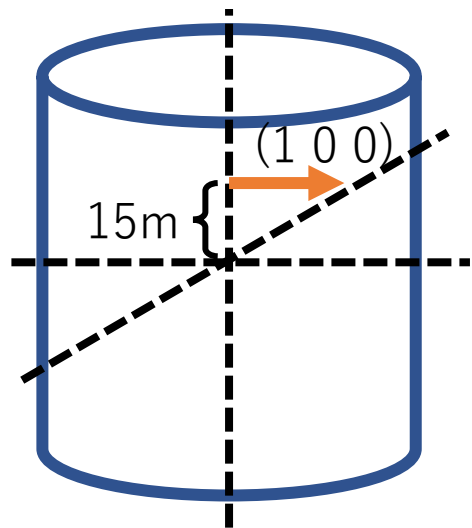
```
193 /mygen/generator laser
194 /gps/particle opticalphoton
195 /gps/energy 2.58 eV
196 /gps/direction 0 0 1
197 /gps/position 0 0 15 m
198 /gps/number 10000
199 # /gps/ang/type iso
200 # /gps/ang/mintheta 0 deg
201 # /gps/ang/maxtheta 180 deg
202 # /gps/ang/minphi 0 deg
203 # /gps/ang/maxphi 360 deg
204 /gps/verbose 0
```

B&L



mPMT



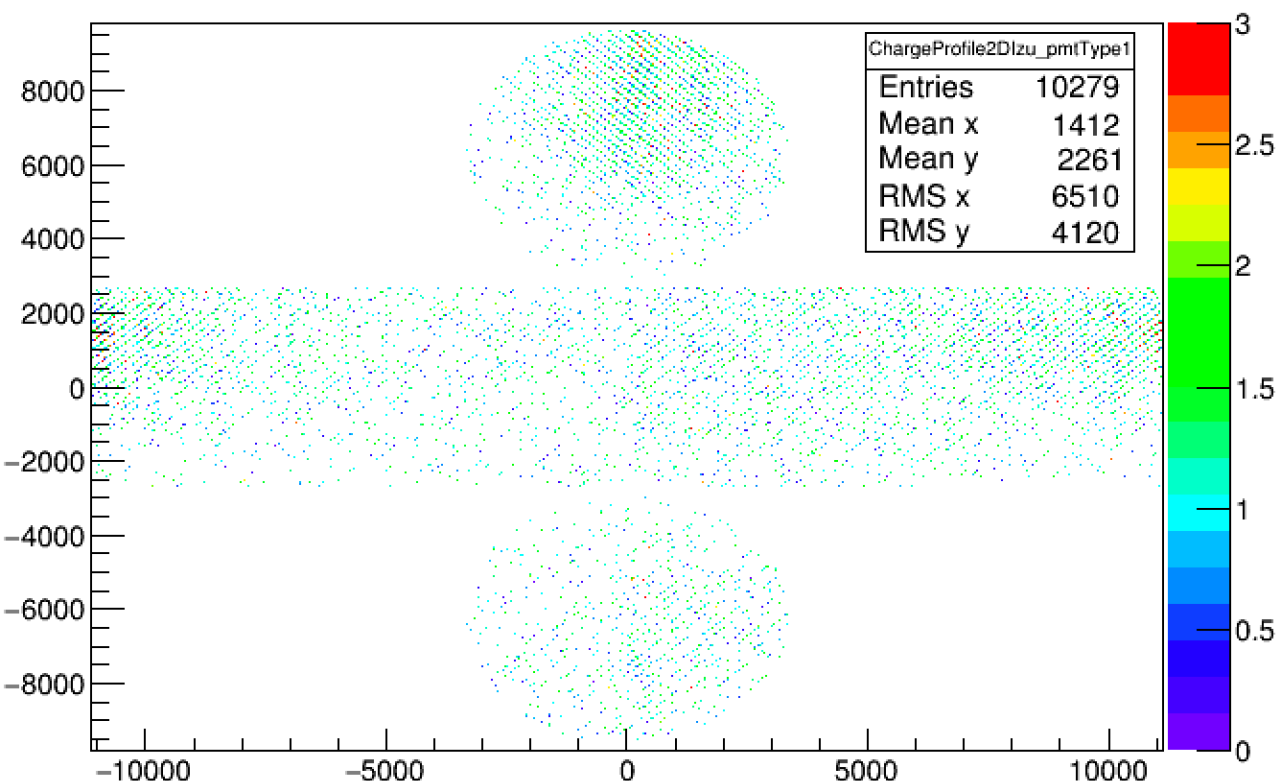
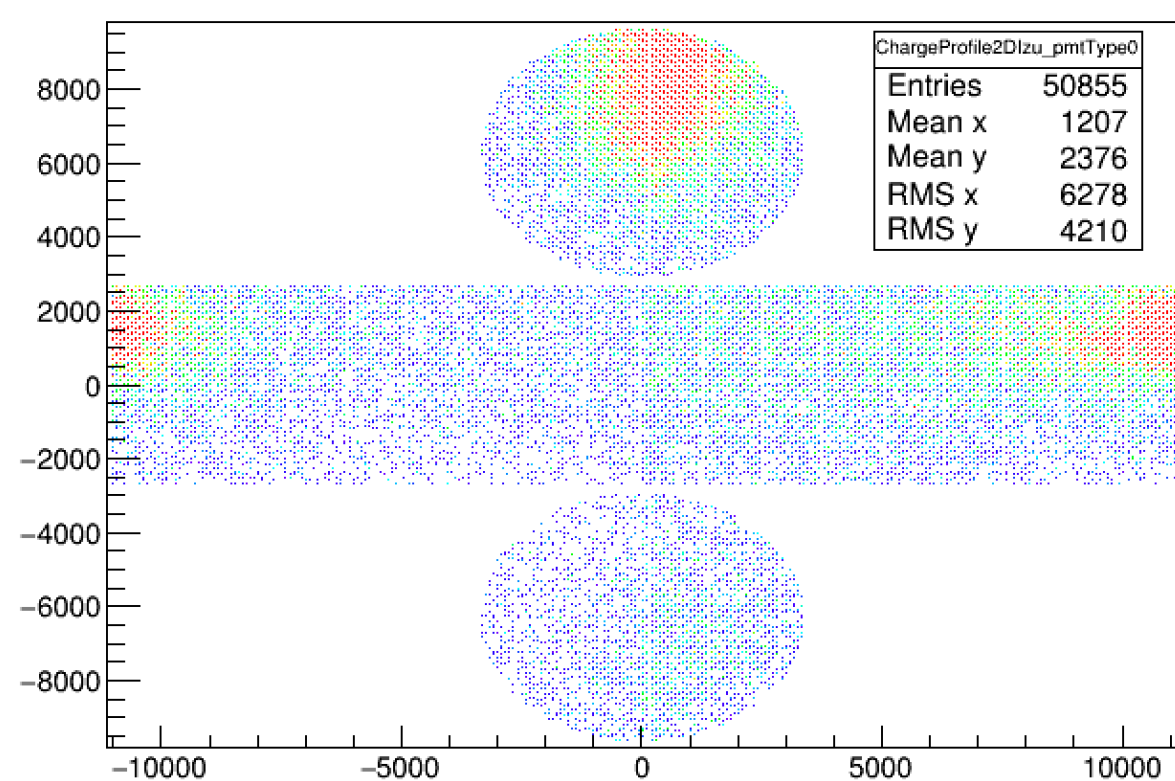


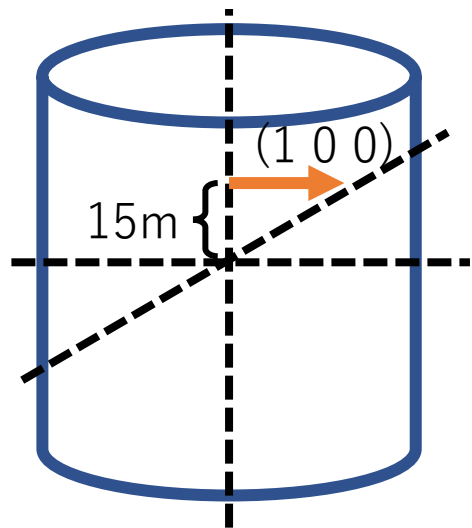
with a reflector
 plotDigitized : true
 Took only triggered events (Mode 0)
 Setdarkwindow 0

B&L

```
193 /mygen/generator laser
194 /gps/particle opticalphoton
195 /gps/energy 2.58 eV
196 /gps/direction 1 0 0
197 /gps/position 0 0 15 m
198 /gps/number 10000
199 # /gps/ang/type iso
200 # /gps/ang/mintheta 0 deg
201 # /gps/ang/maxtheta 180 deg
202 # /gps/ang/minphi 0 deg
203 # /gps/ang/maxphi 360 deg
204 /gps/verbose 0
```

mPMT

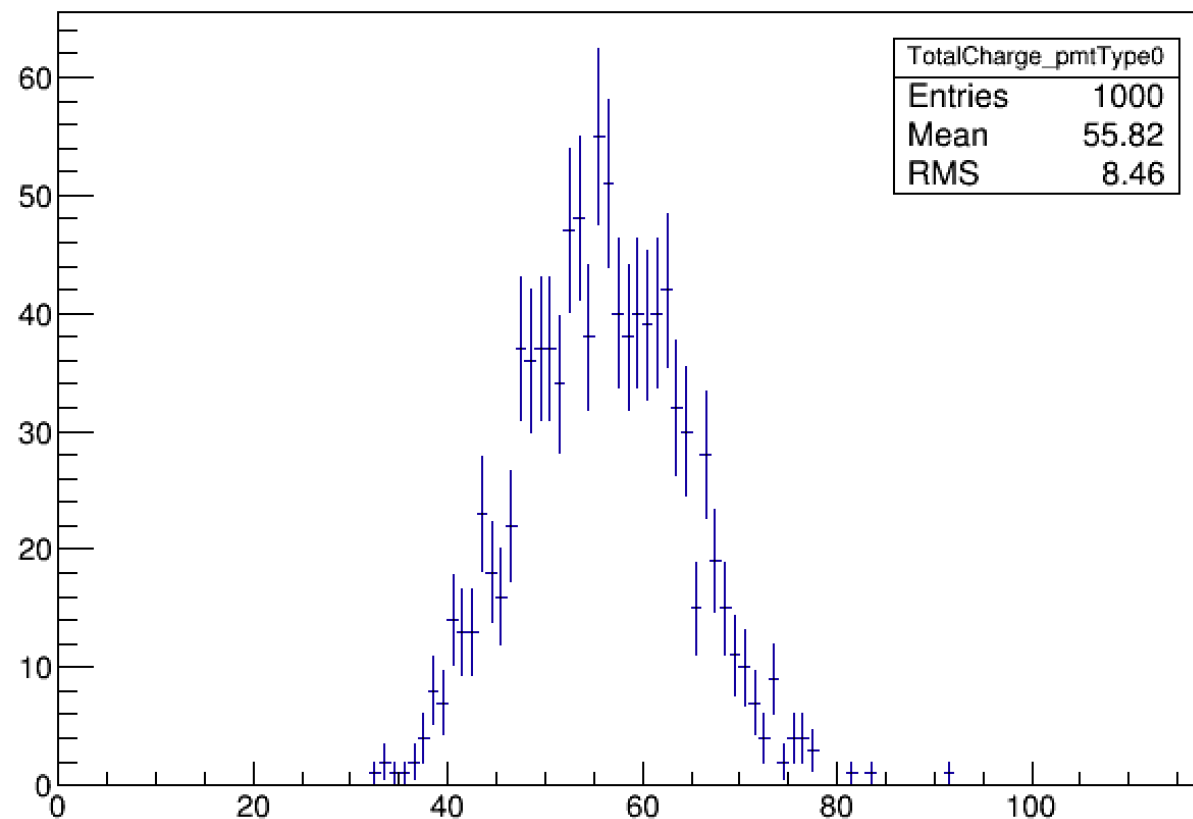




with a reflector
 plotDigitized : true
 Took only triggered events (Mode 0)
 Setdarkwindow 0

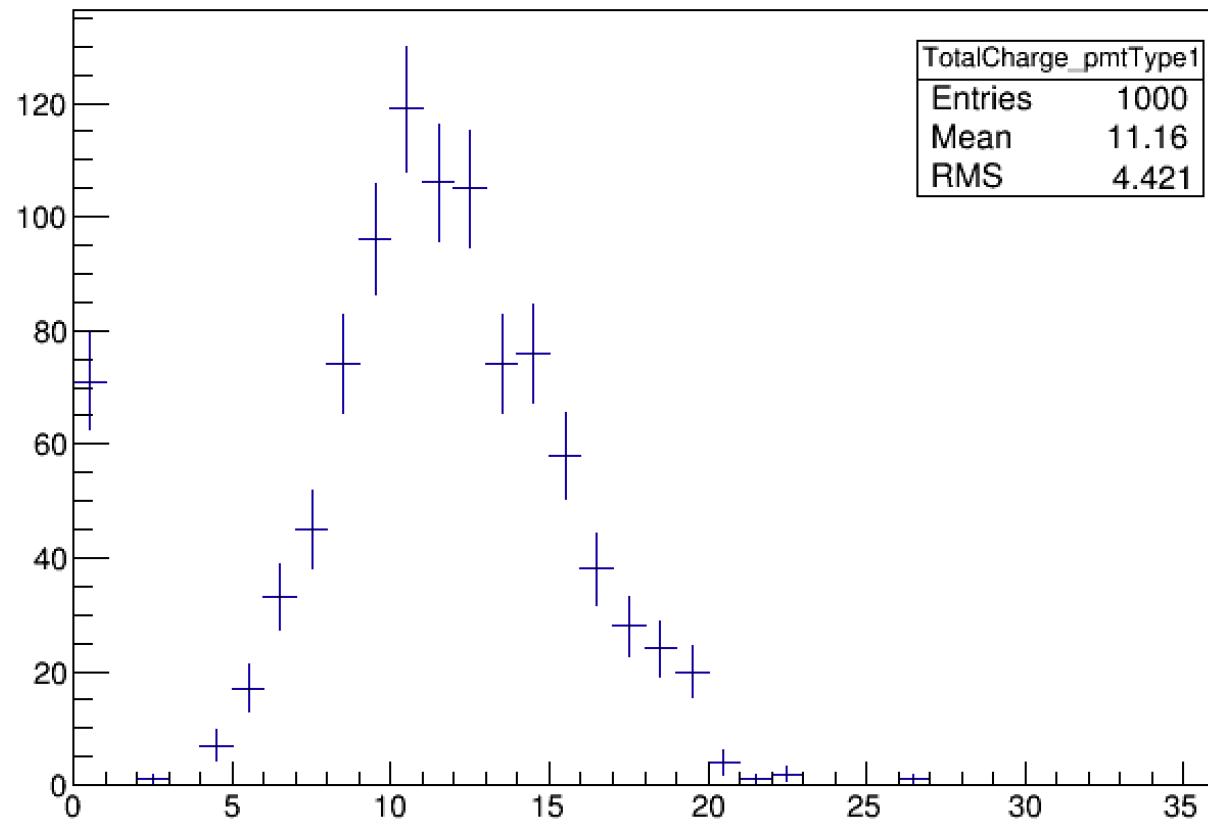
Total Charge

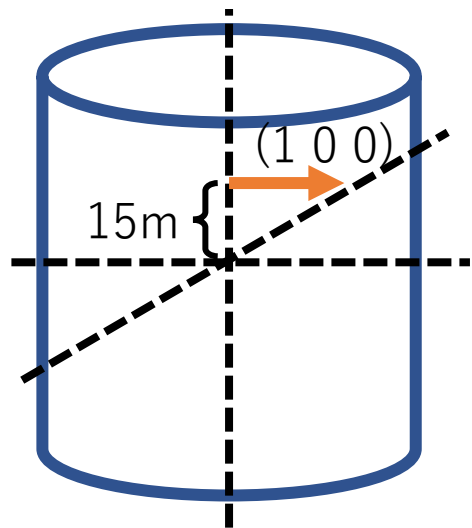
B&L



```
193 /mygen/generator laser
194 /gps/particle opticalphoton
195 /gps/energy 2.58 eV
196 /gps/direction 1 0 0
197 /gps/position 0 0 15 m
198 /gps/number 10000
199 # /gps/ang/type iso
200 # /gps/ang/mintheta 0 deg
201 # /gps/ang/maxtheta 180 deg
202 # /gps/ang/minphi 0 deg
203 # /gps/ang/maxphi 360 deg
204 /gps/verbose 0
```

mPMT



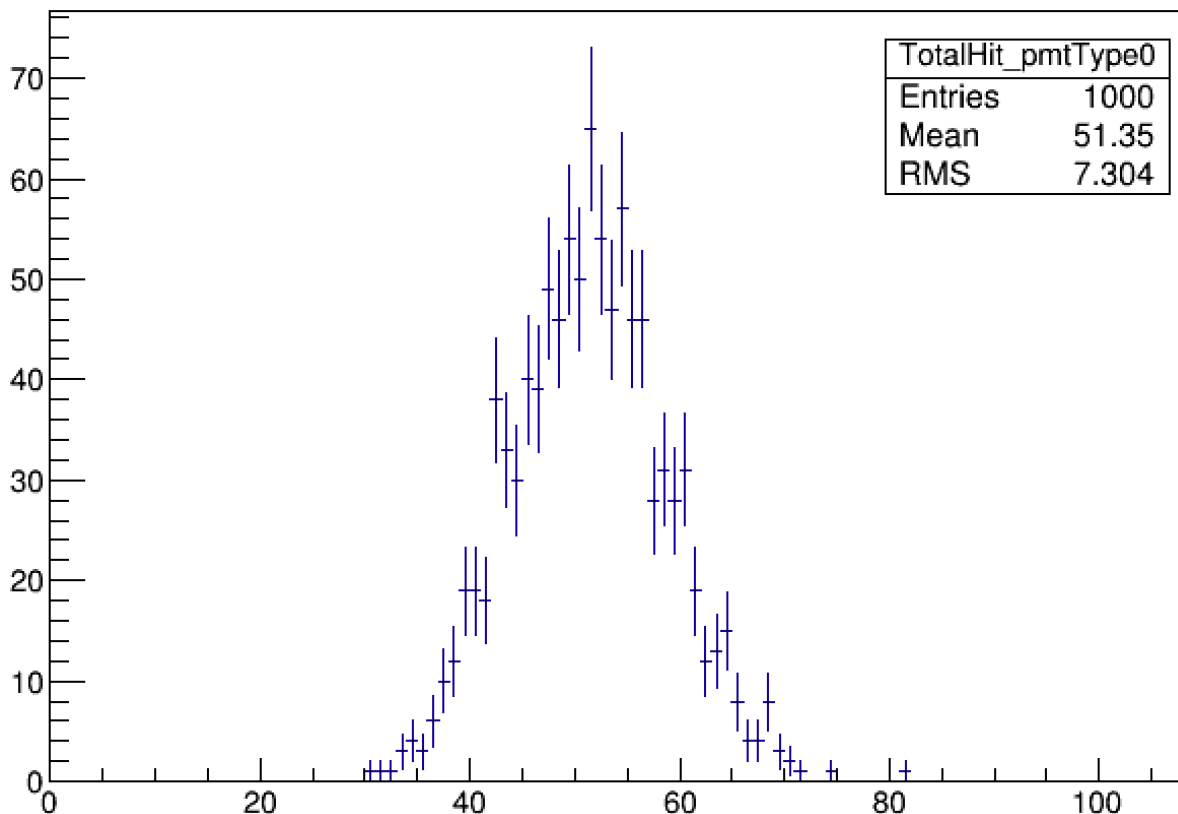


with a reflector
 plotDigitized : true
 Took only triggered events (Mode 0)
 Setdarkwindow 0

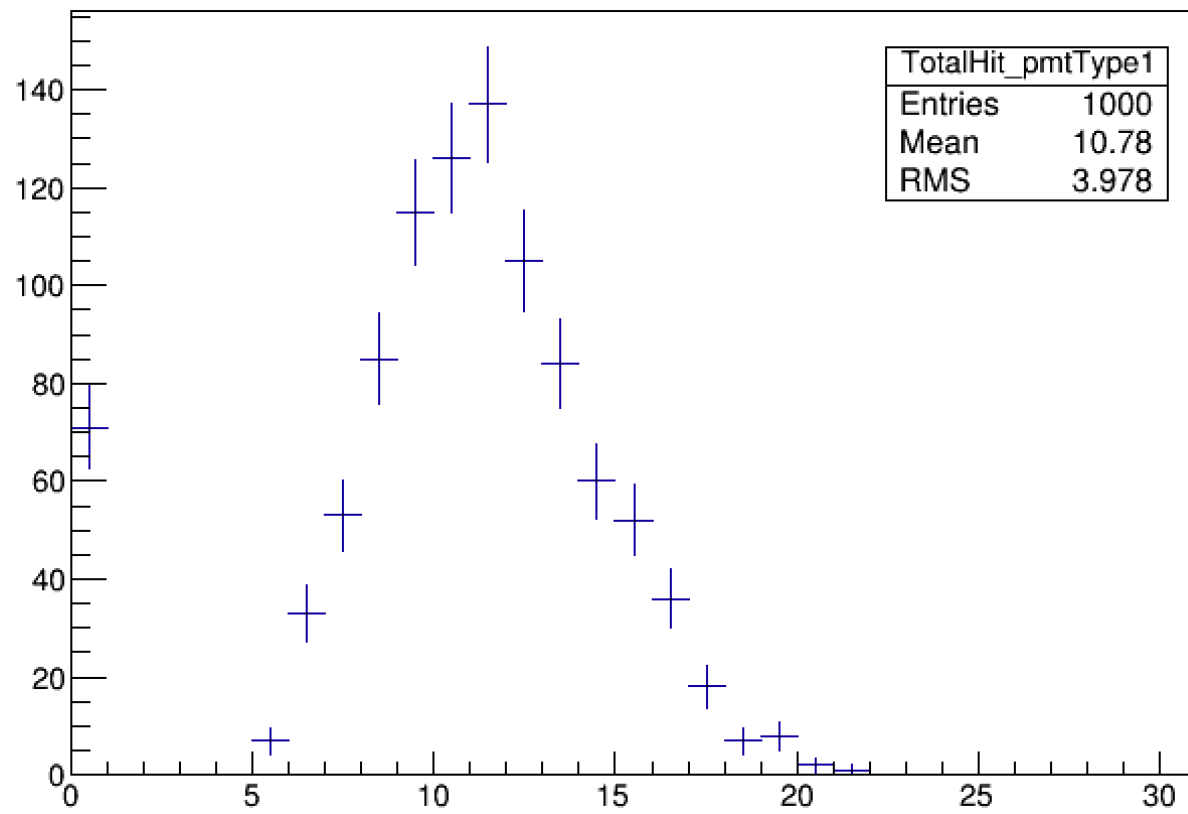
Total Hit

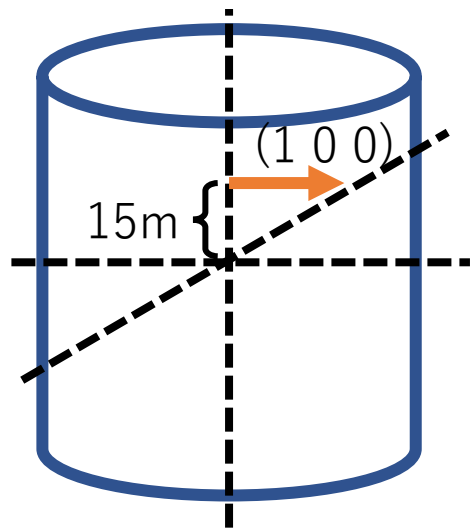
```
193 /mygen/generator laser
194 /gps/particle opticalphoton
195 /gps/energy 2.58 eV
196 /gps/direction 1 0 0
197 /gps/position 0 0 15 m
198 /gps/number 10000
199 # /gps/ang/type iso
200 # /gps/ang/mintheta 0 deg
201 # /gps/ang/maxtheta 180 deg
202 # /gps/ang/minphi 0 deg
203 # /gps/ang/maxphi 360 deg
204 /gps/verbose 0
```

B&L



mPMT



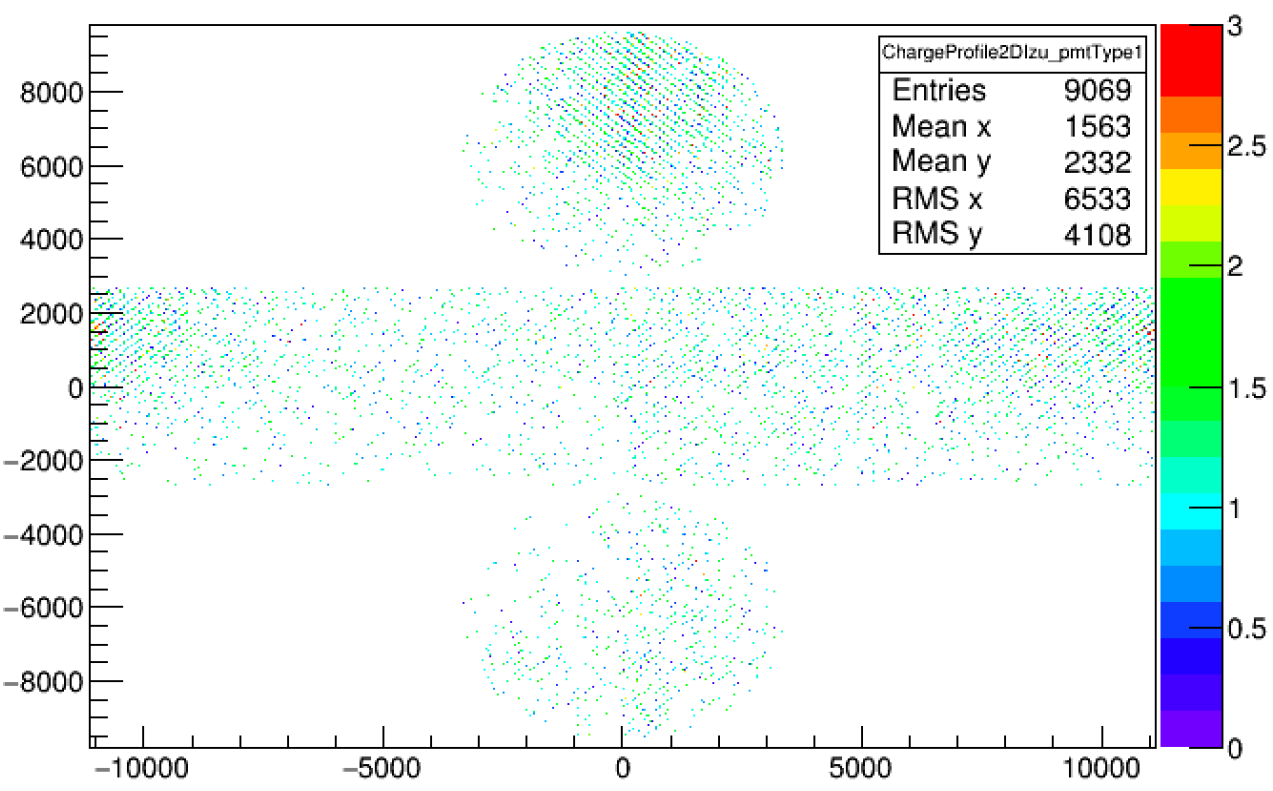
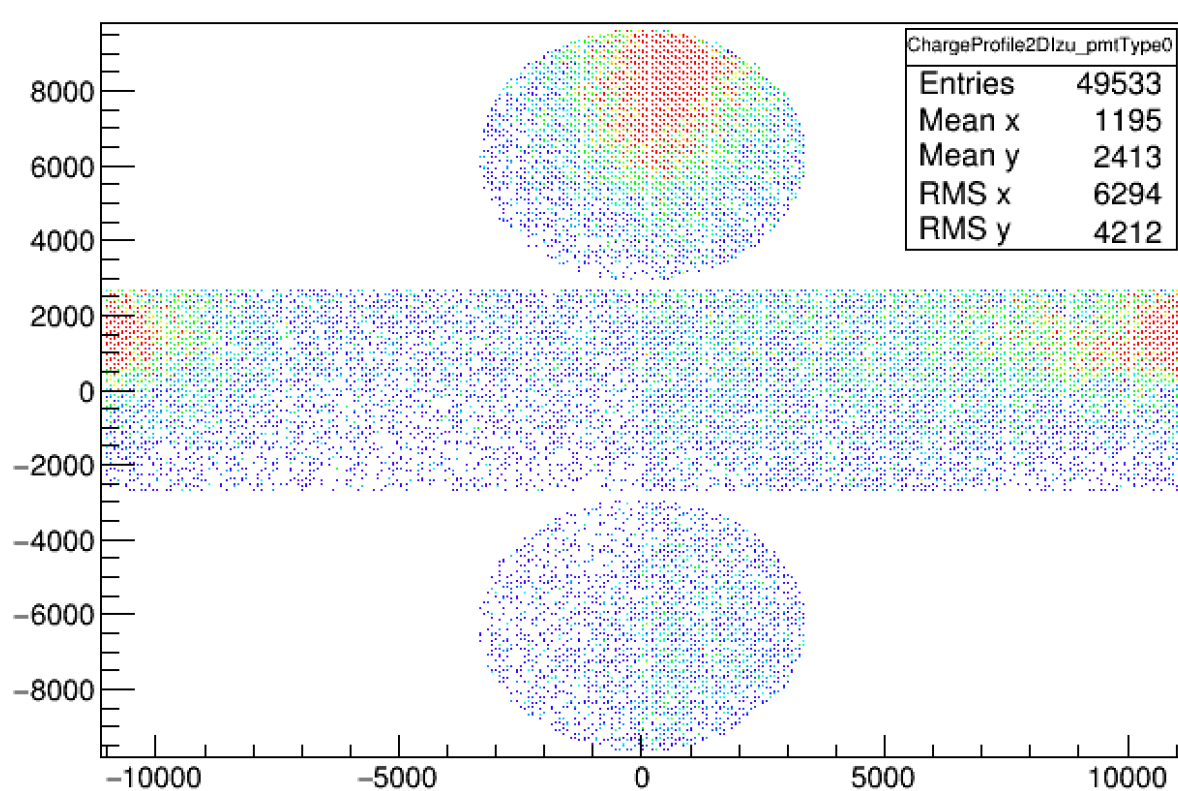


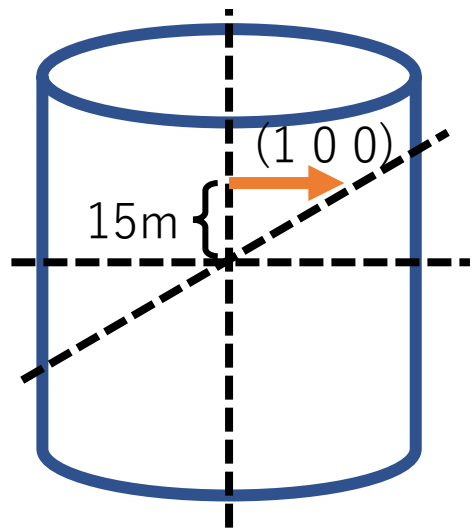
without a reflector
 plotDigitized : true
 Took only triggered events (Mode 0)
 Setdarkwindow 0

B&L

```
193 /mygen/generator laser
194 /gps/particle opticalphoton
195 /gps/energy 2.58 eV
196 /gps/direction 1 0 0
197 /gps/position 0 0 15 m
198 /gps/number 10000
199 # /gps/ang/type iso
200 # /gps/ang/mintheta 0 deg
201 # /gps/ang/maxtheta 180 deg
202 # /gps/ang/minphi 0 deg
203 # /gps/ang/maxphi 360 deg
204 /gps/verbose 0
```

mPMT



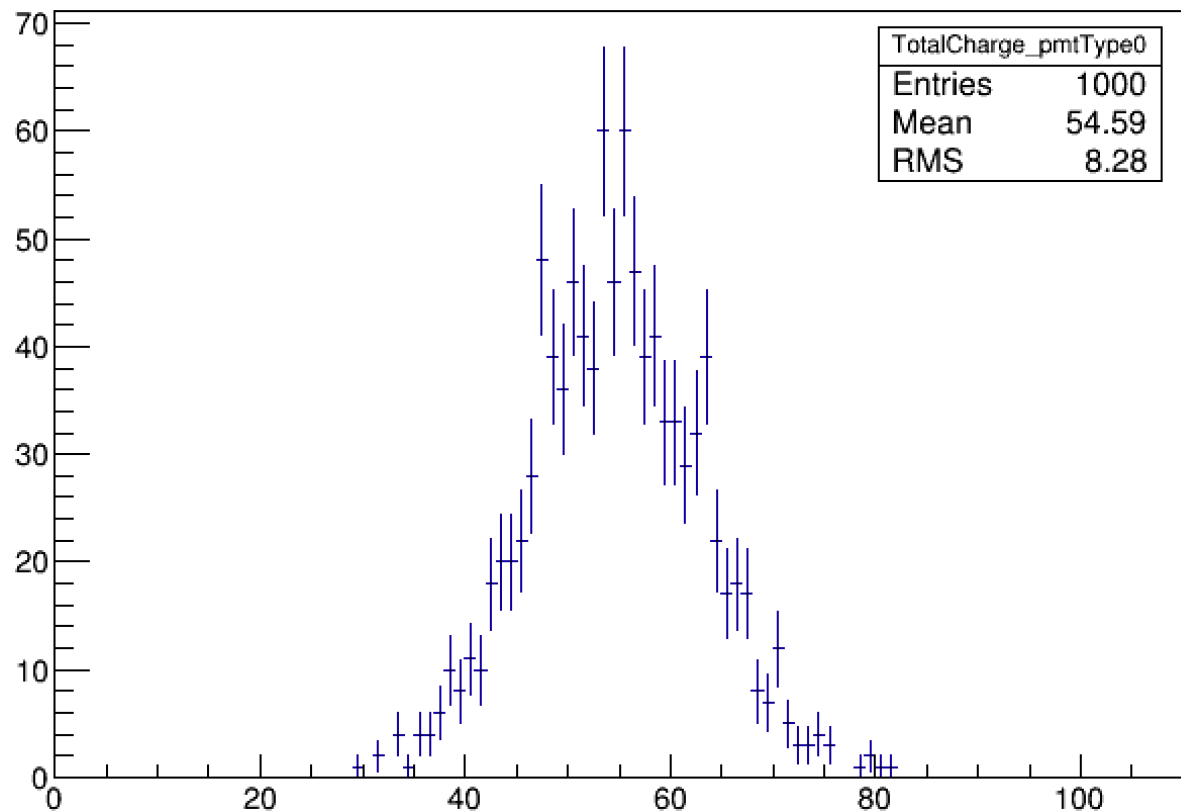


without a reflector
 plotDigitized : true
 Took only triggered events (Mode 0)
 Setdarkwindow 0

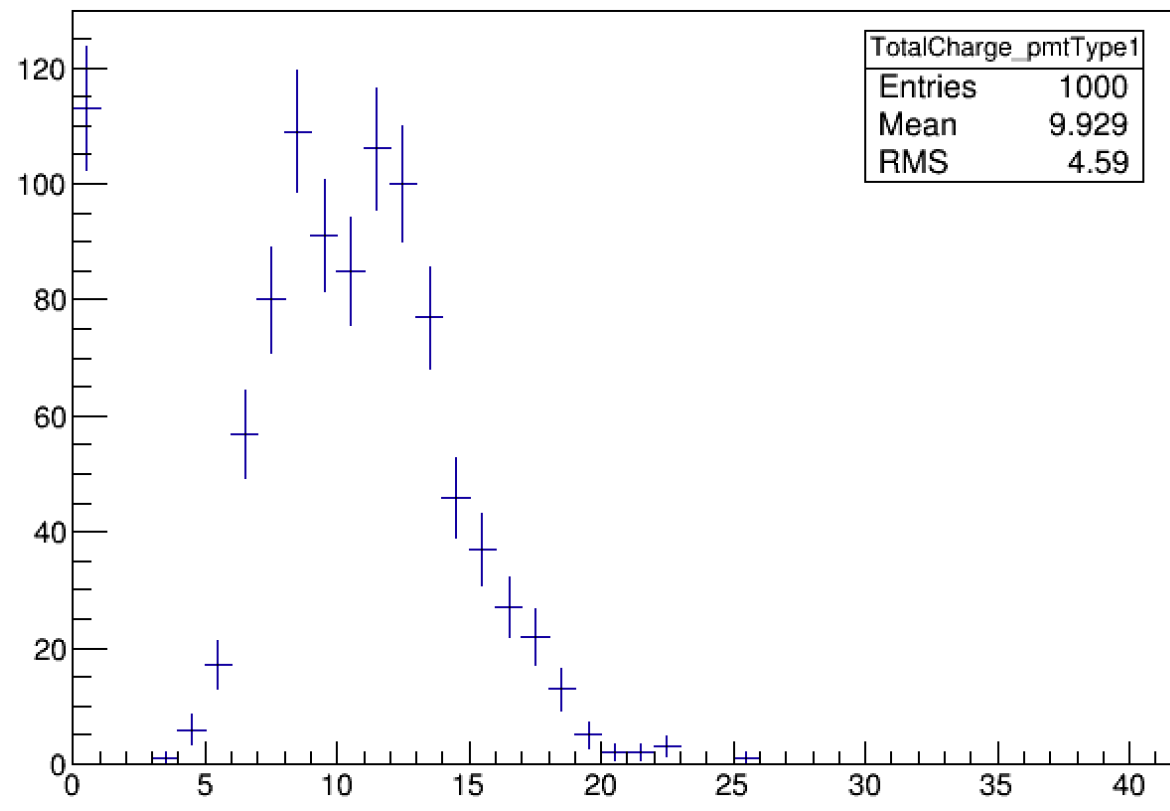
Total Charge

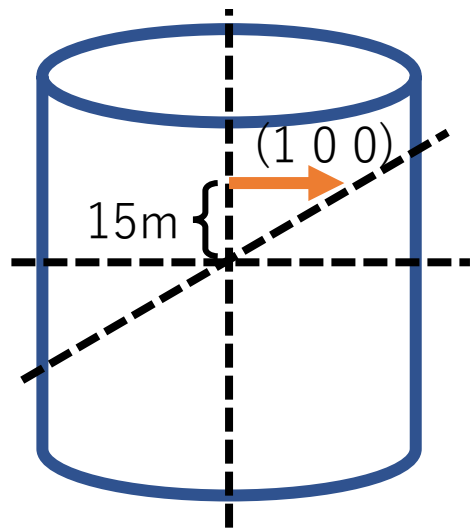
```
193 /mygen/generator laser
194 /gps/particle opticalphoton
195 /gps/energy 2.58 eV
196 /gps/direction 1 0 0
197 /gps/position 0 0 15 m
198 /gps/number 10000
199 # /gps/ang/type iso
200 # /gps/ang/mintheta 0 deg
201 # /gps/ang/maxtheta 180 deg
202 # /gps/ang/minphi 0 deg
203 # /gps/ang/maxphi 360 deg
204 /gps/verbose 0
```

B&L



mPMT



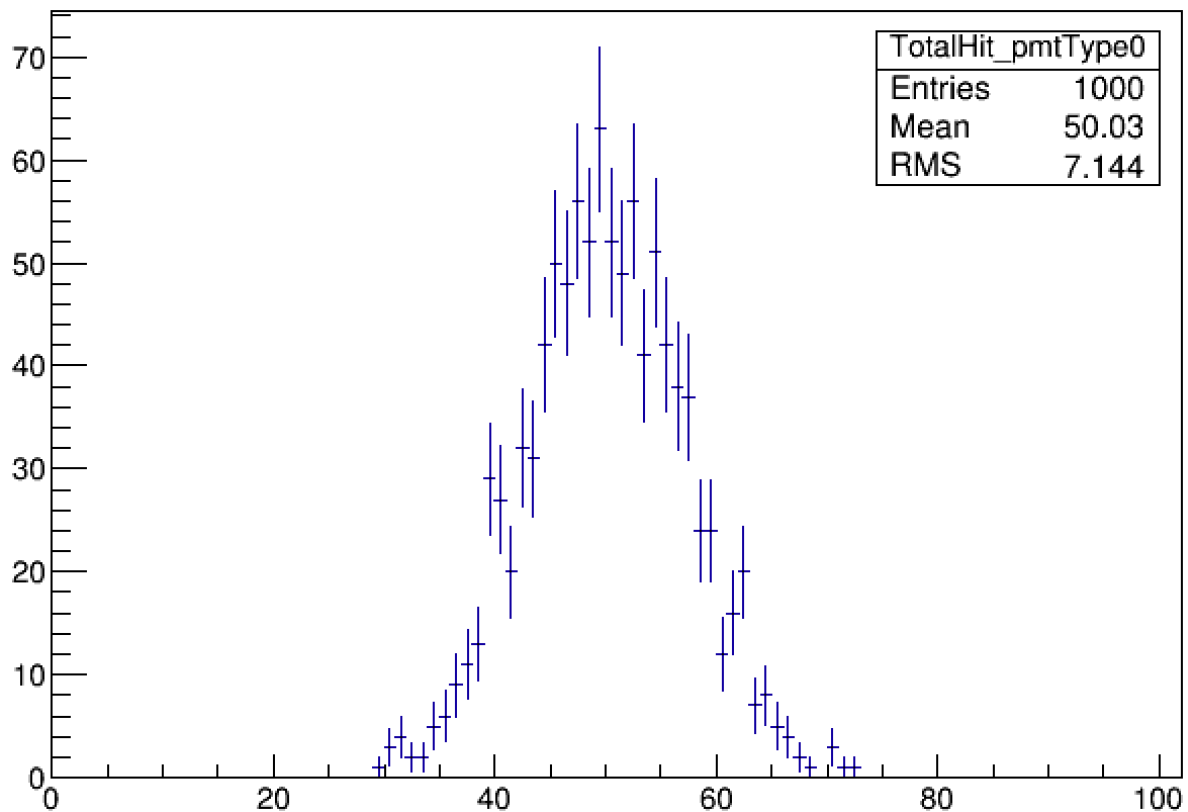


without a reflector
 plotDigitized : true
 Took only triggered events (Mode 0)
 Setdarkwindow 0

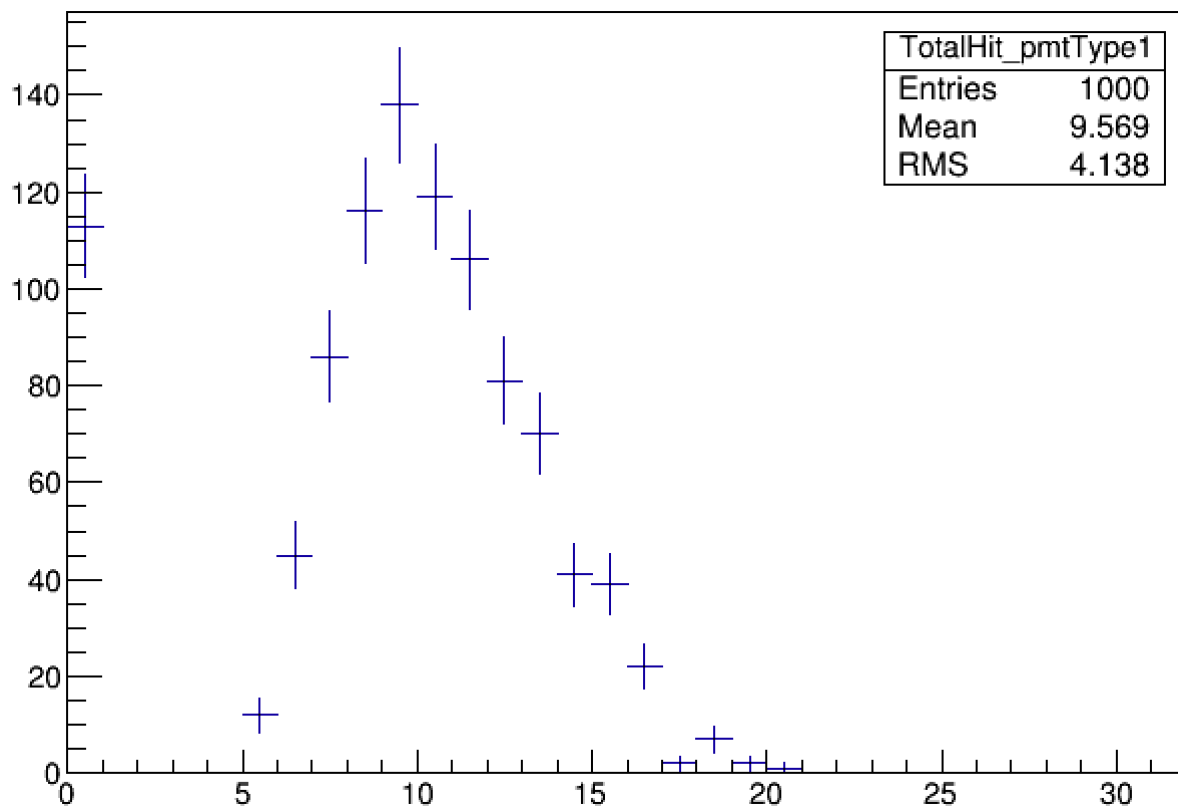
Total Hit

```
193 /mygen/generator laser
194 /gps/particle opticalphoton
195 /gps/energy 2.58 eV
196 /gps/direction 1 0 0
197 /gps/position 0 0 15 m
198 /gps/number 10000
199 # /gps/ang/type iso
200 # /gps/ang/mintheta 0 deg
201 # /gps/ang/maxtheta 180 deg
202 # /gps/ang/minphi 0 deg
203 # /gps/ang/maxphi 360 deg
204 /gps/verbose 0
```

B&L



mPMT



- 2D diagrams show that entries are not where I expected them to be
 - the increment due to the reflector was slightly smaller than expected
 - need to consider more suitable reflector conditions
- I'd like to run more simulations while changing the condition of the reflector (length, angle and mounting position)