

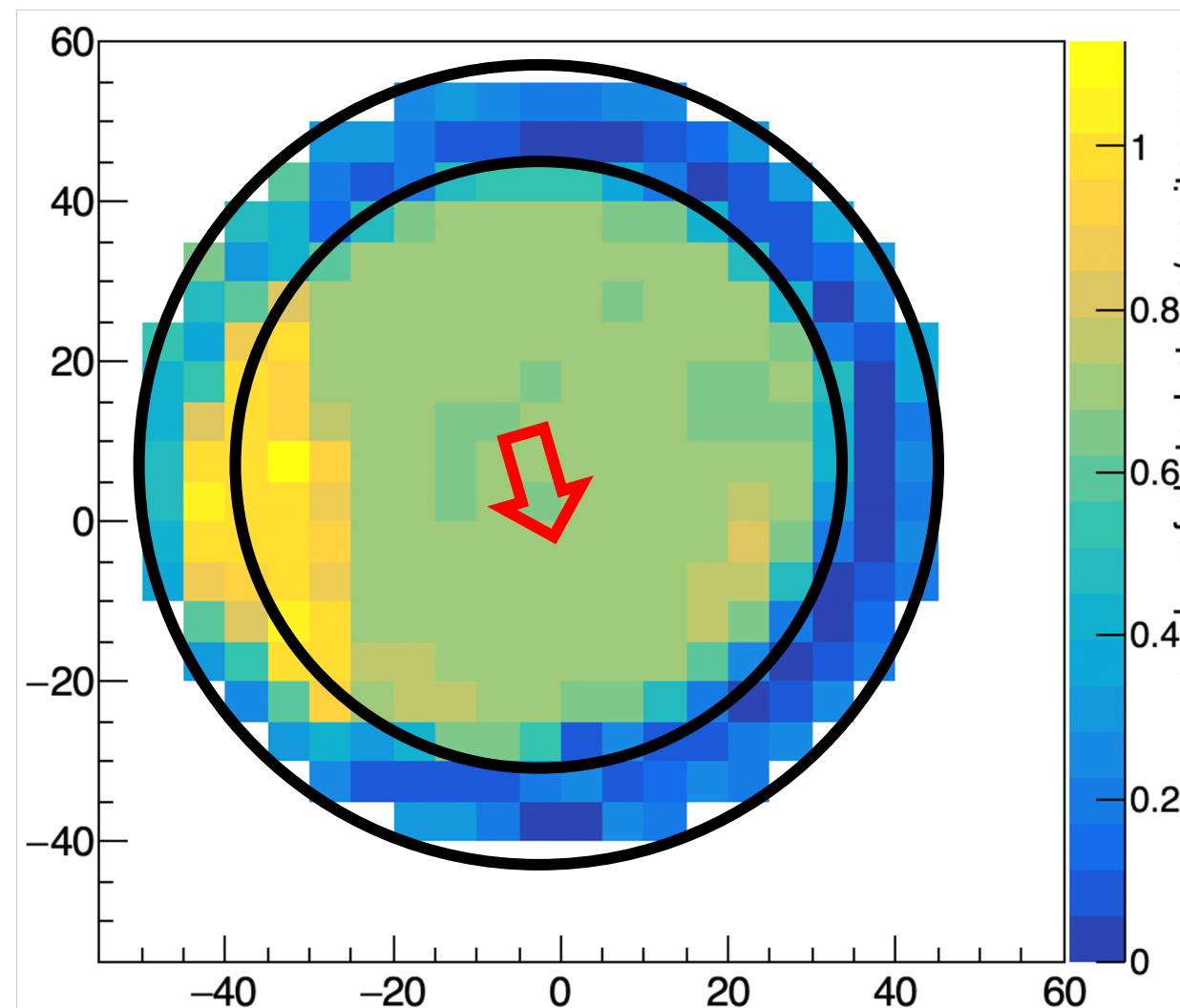
Status Report

Isao Sashima
Nov. 27 , 2020
mPMT meeting

- created a new reflector using 3D printer
- measured with the PMT rotated 180 degrees to check position dependency
- checking how to move the stand while removing the center of PMT

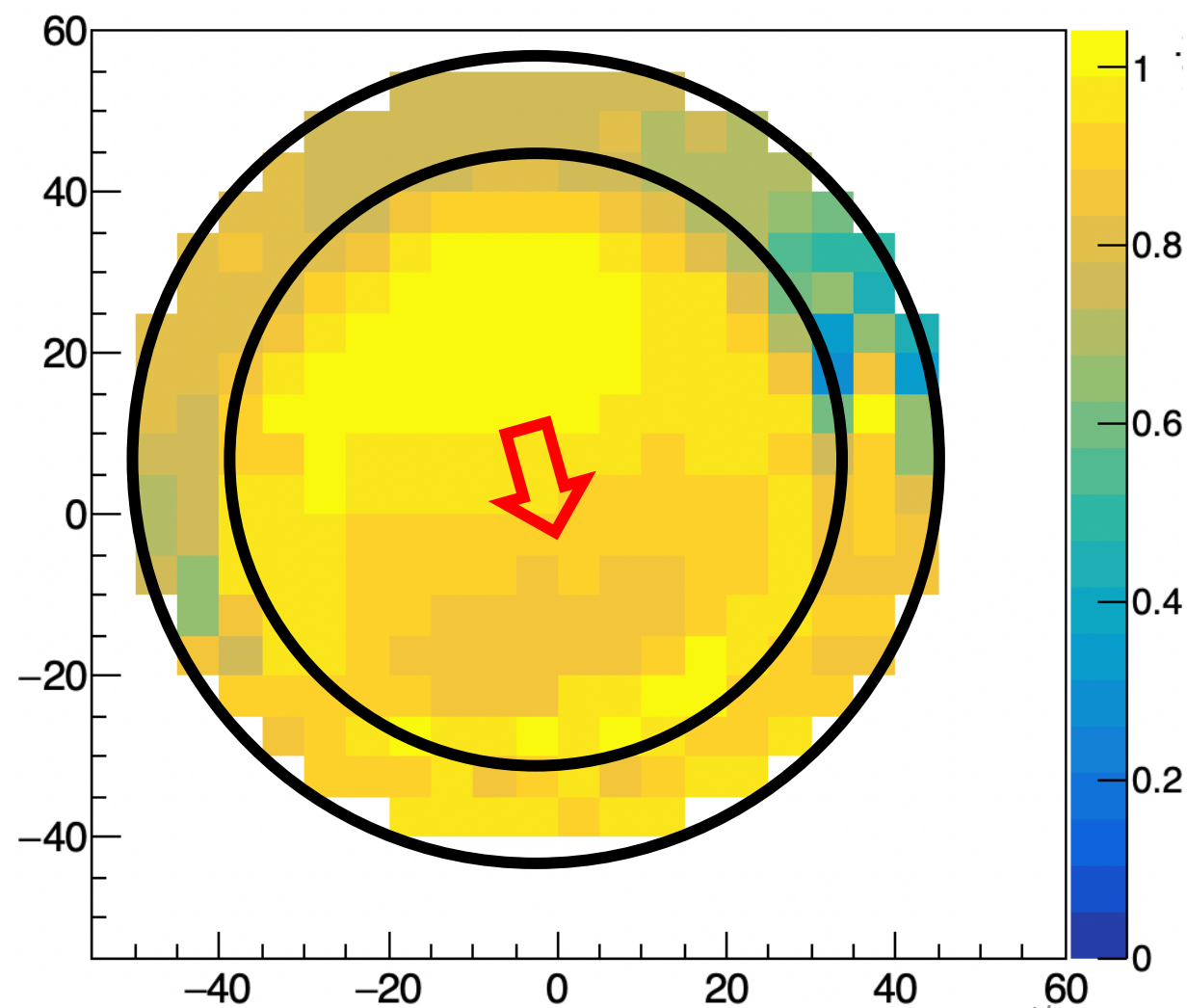
with 51° , 18mm reflector , 529 points

efficiency



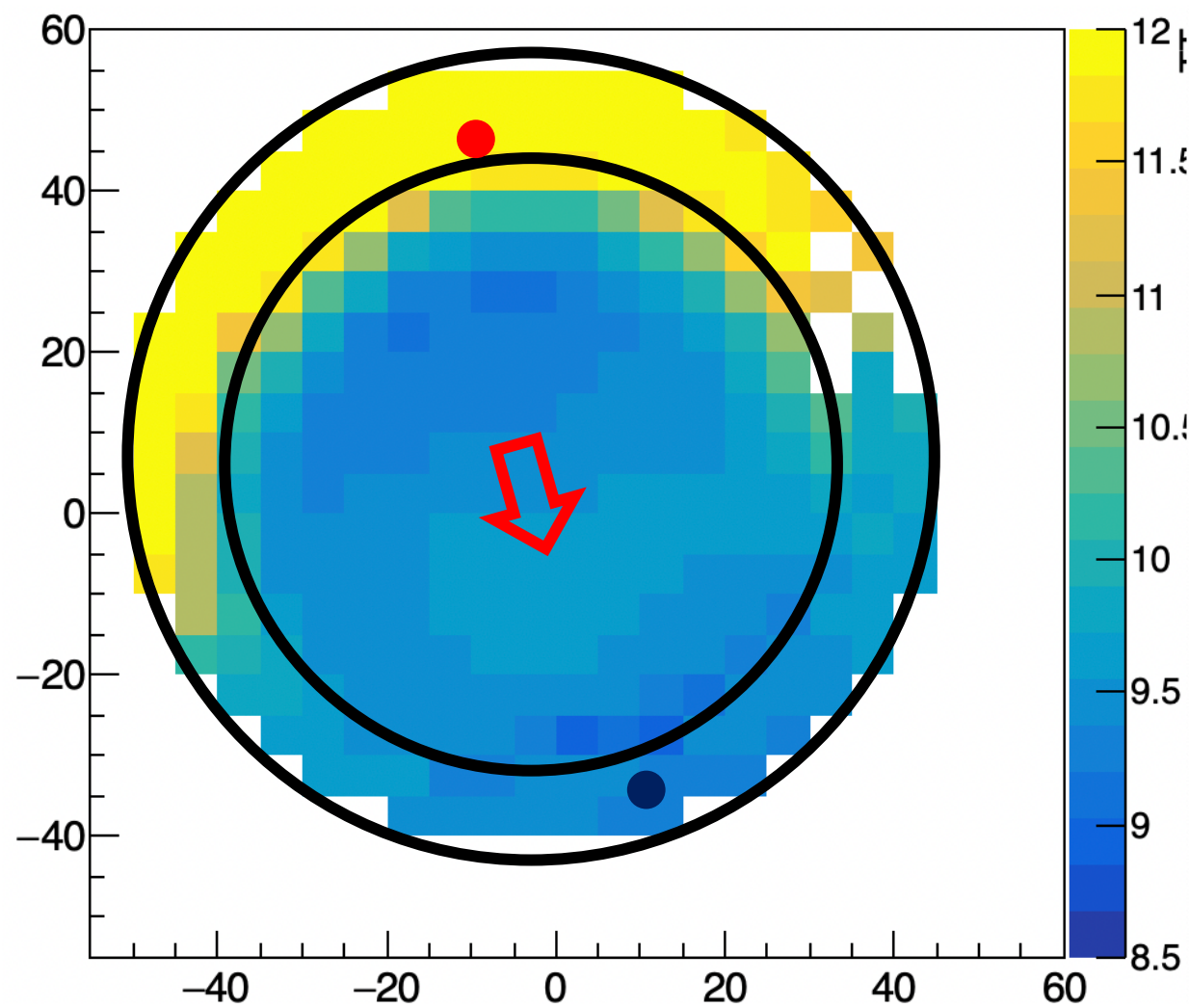
 the direction from the first dynode to the second dynode

gain

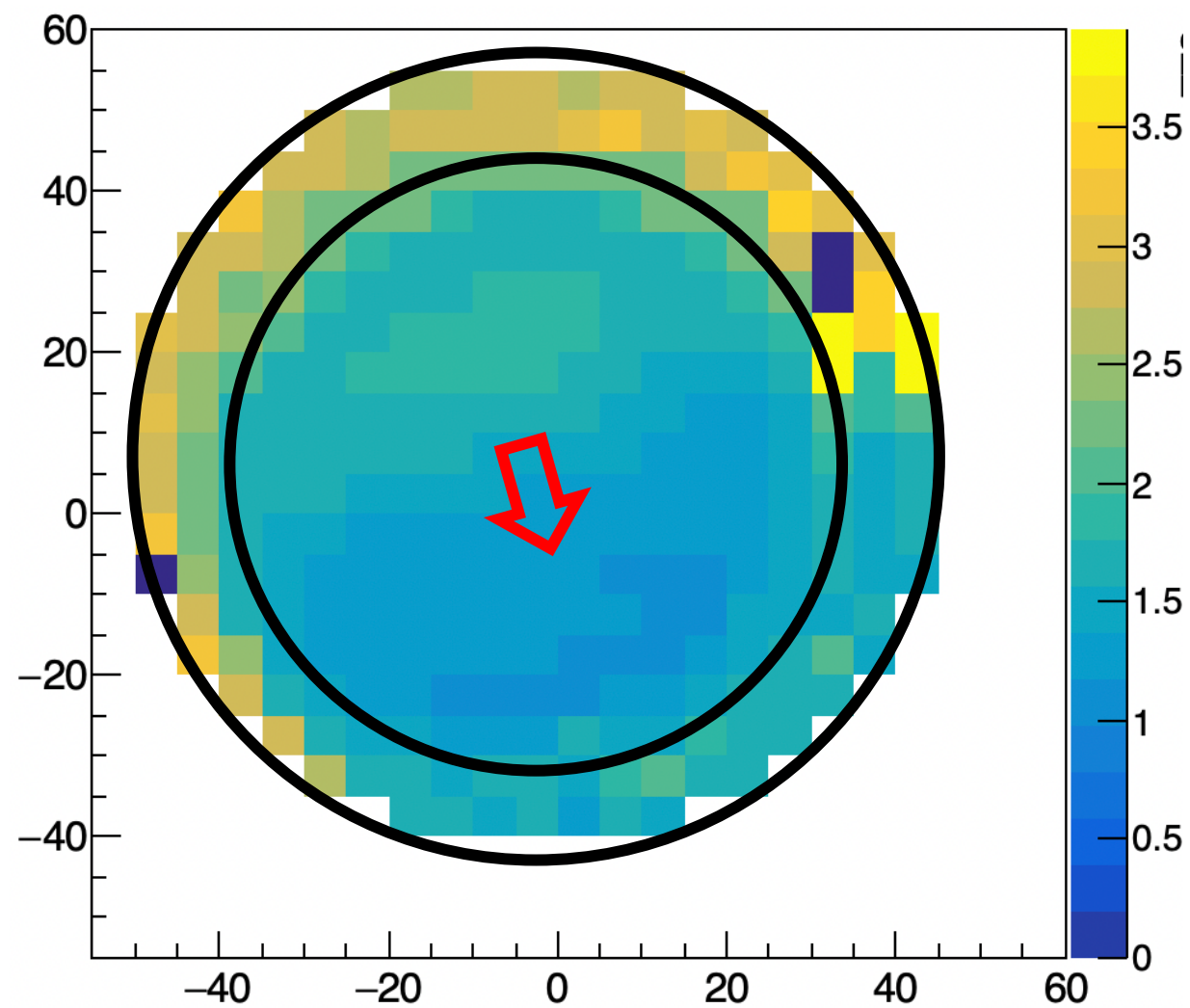


TT on the reflector is larger on the first dynode side

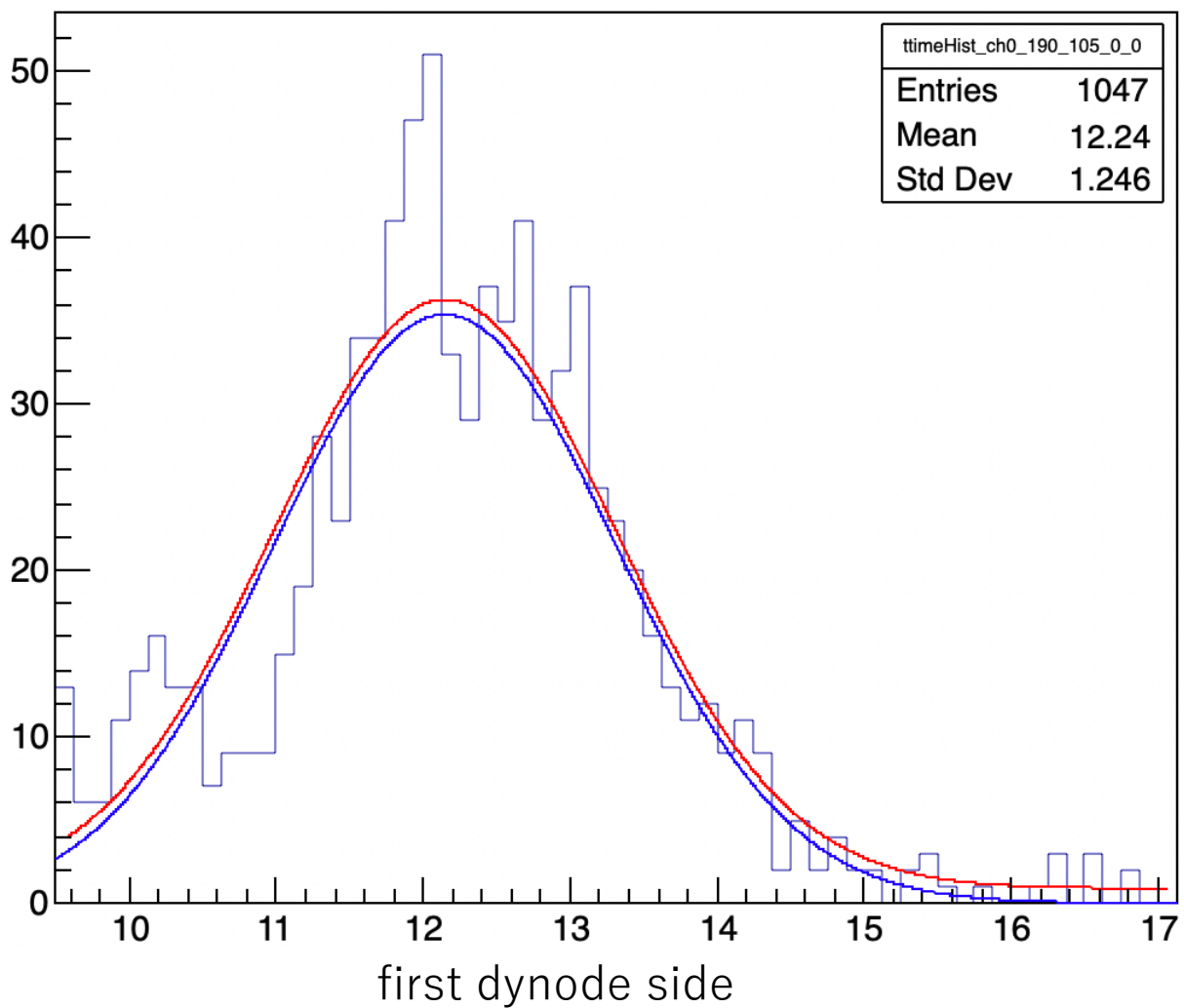
TT



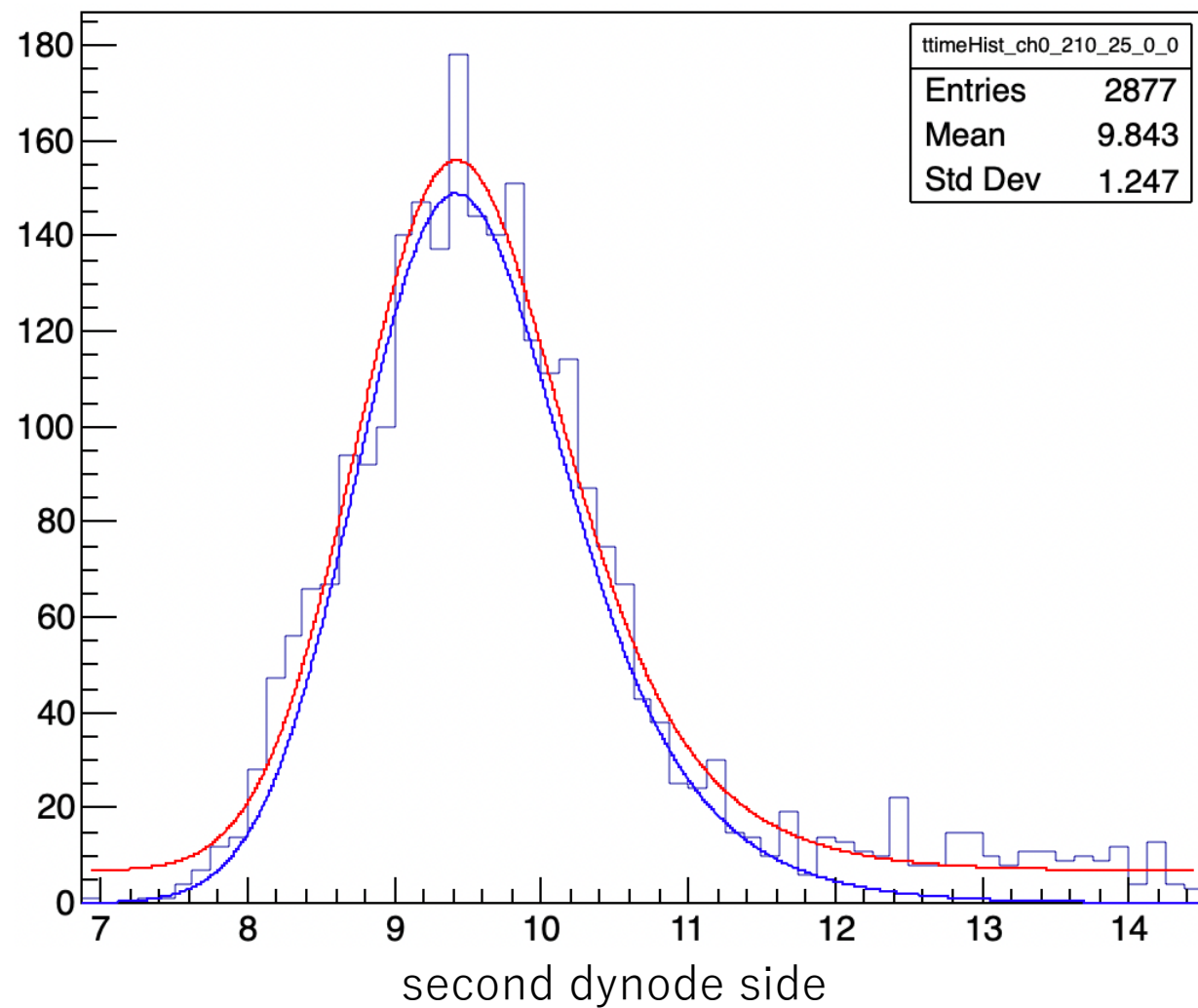
TTS



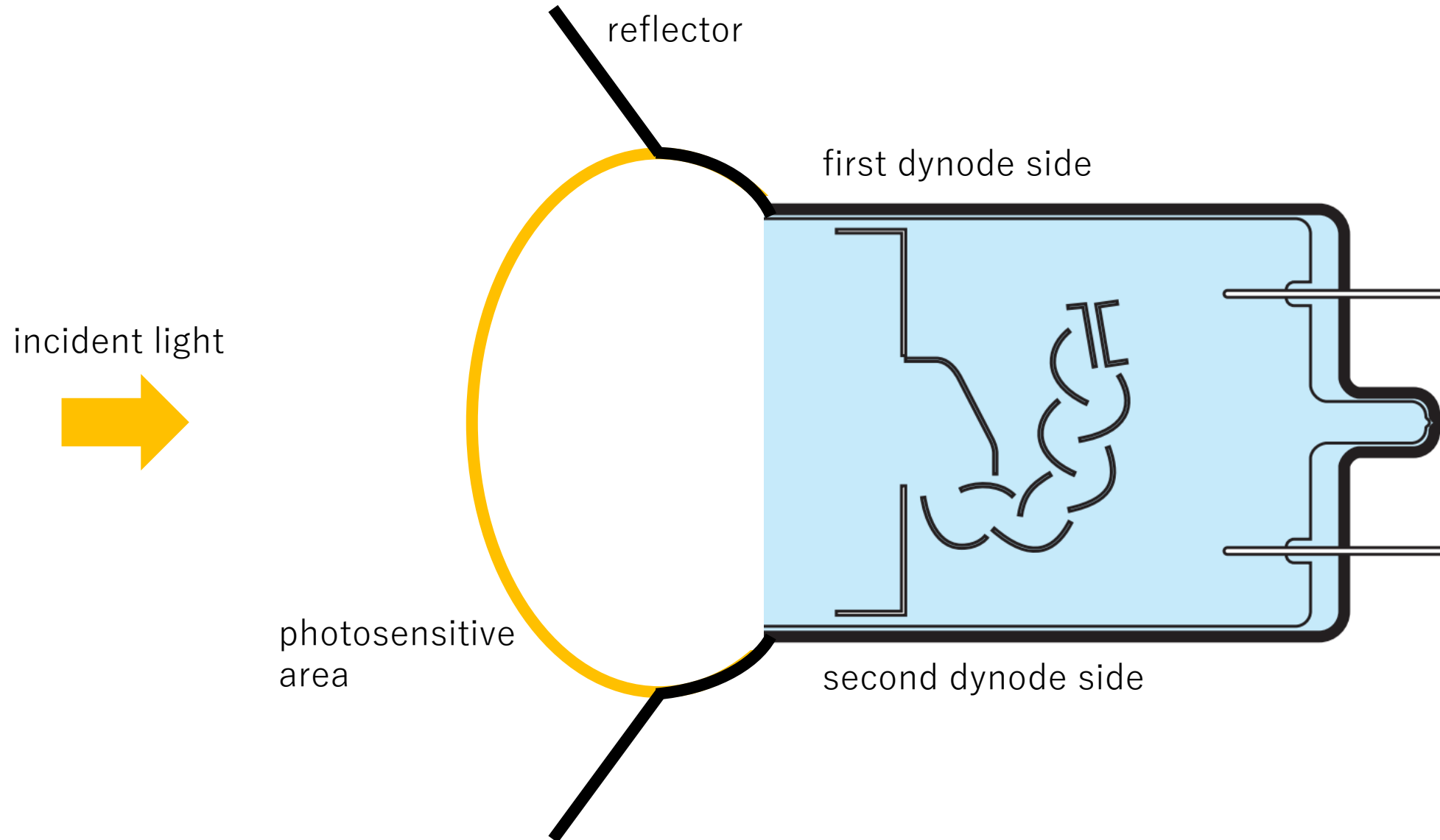
● upper part(-10,45) = (190,105)



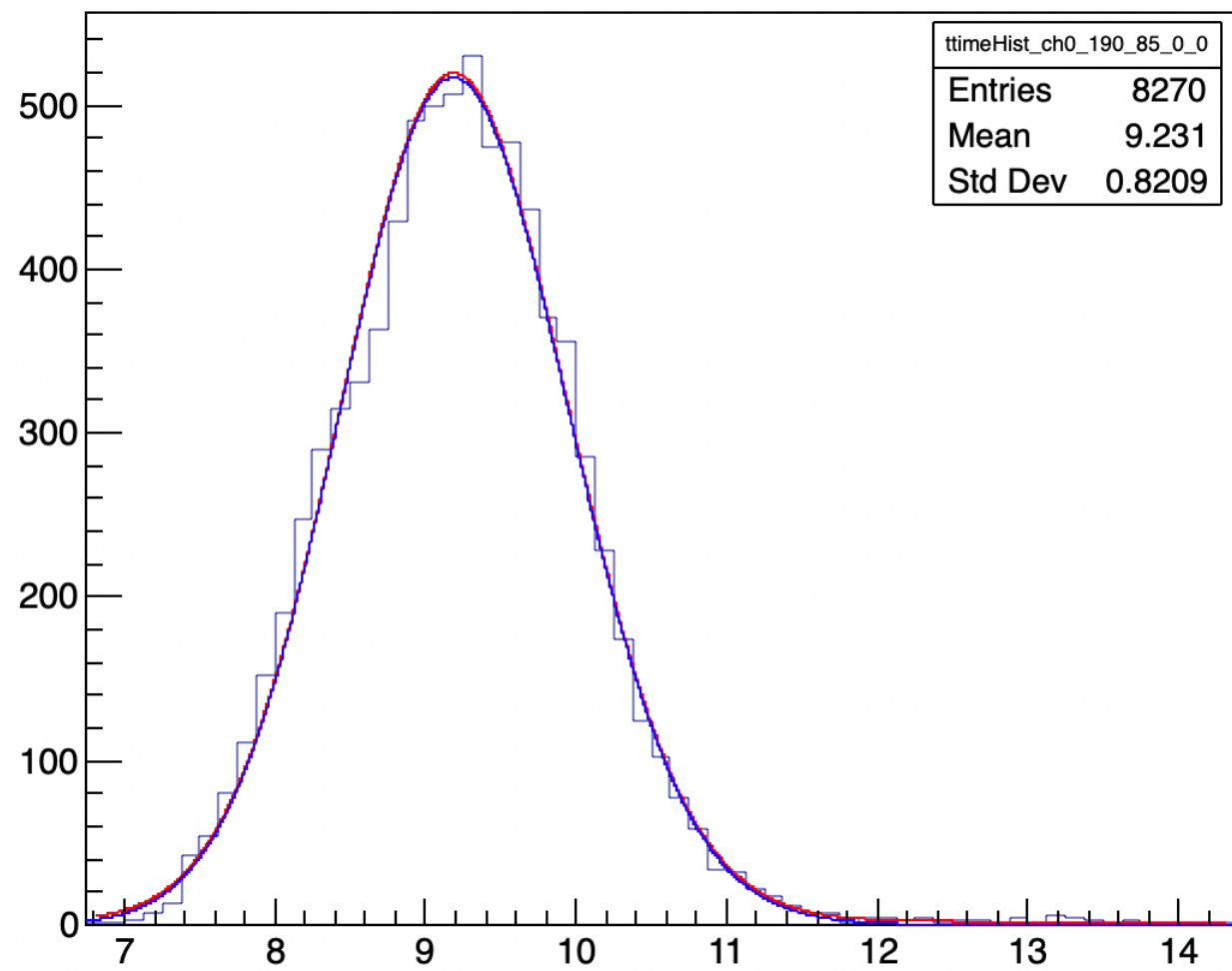
● lower part(10,-35) = (210,25)

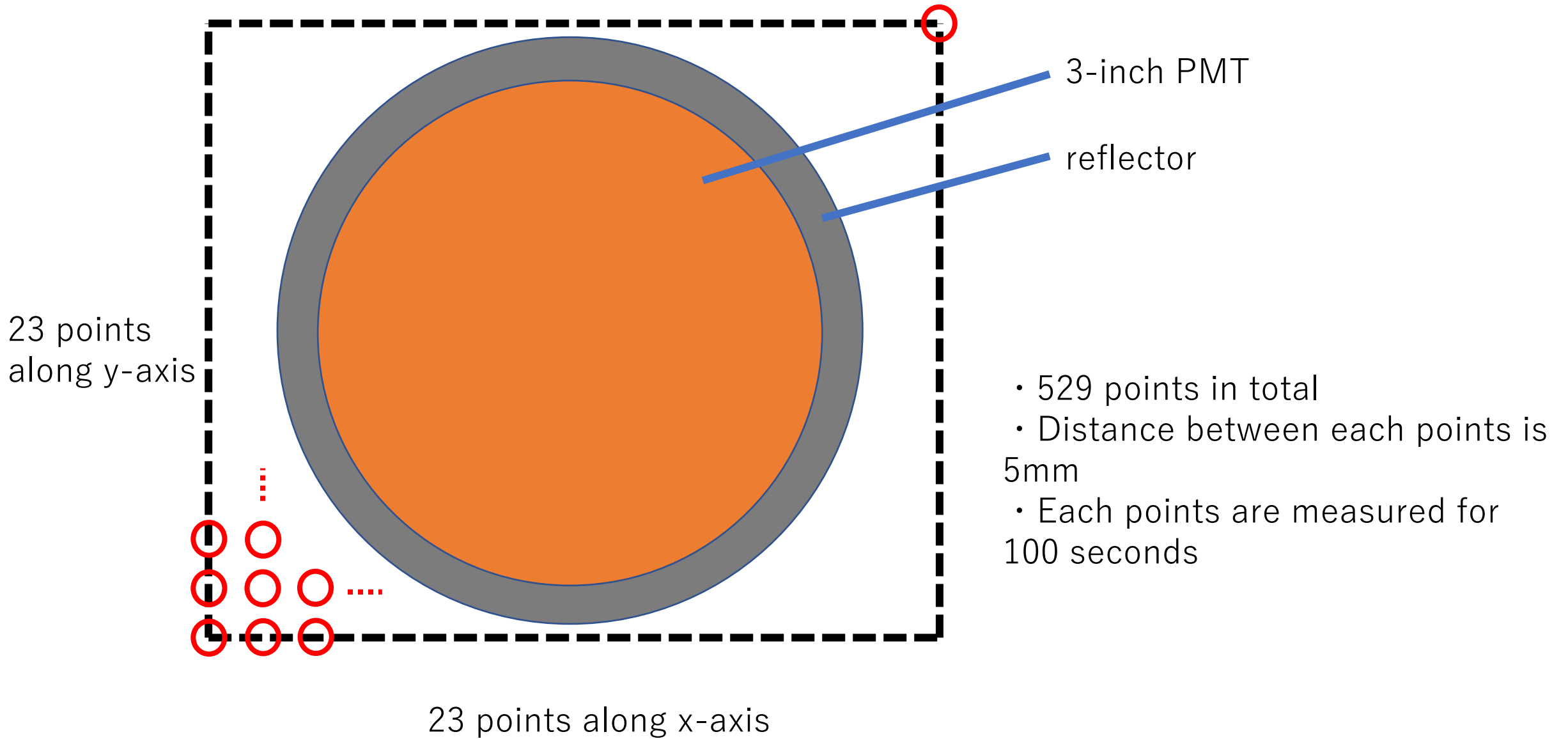


- As in the case without the reflector, suspected that there is a correlation with the position of the dynode.



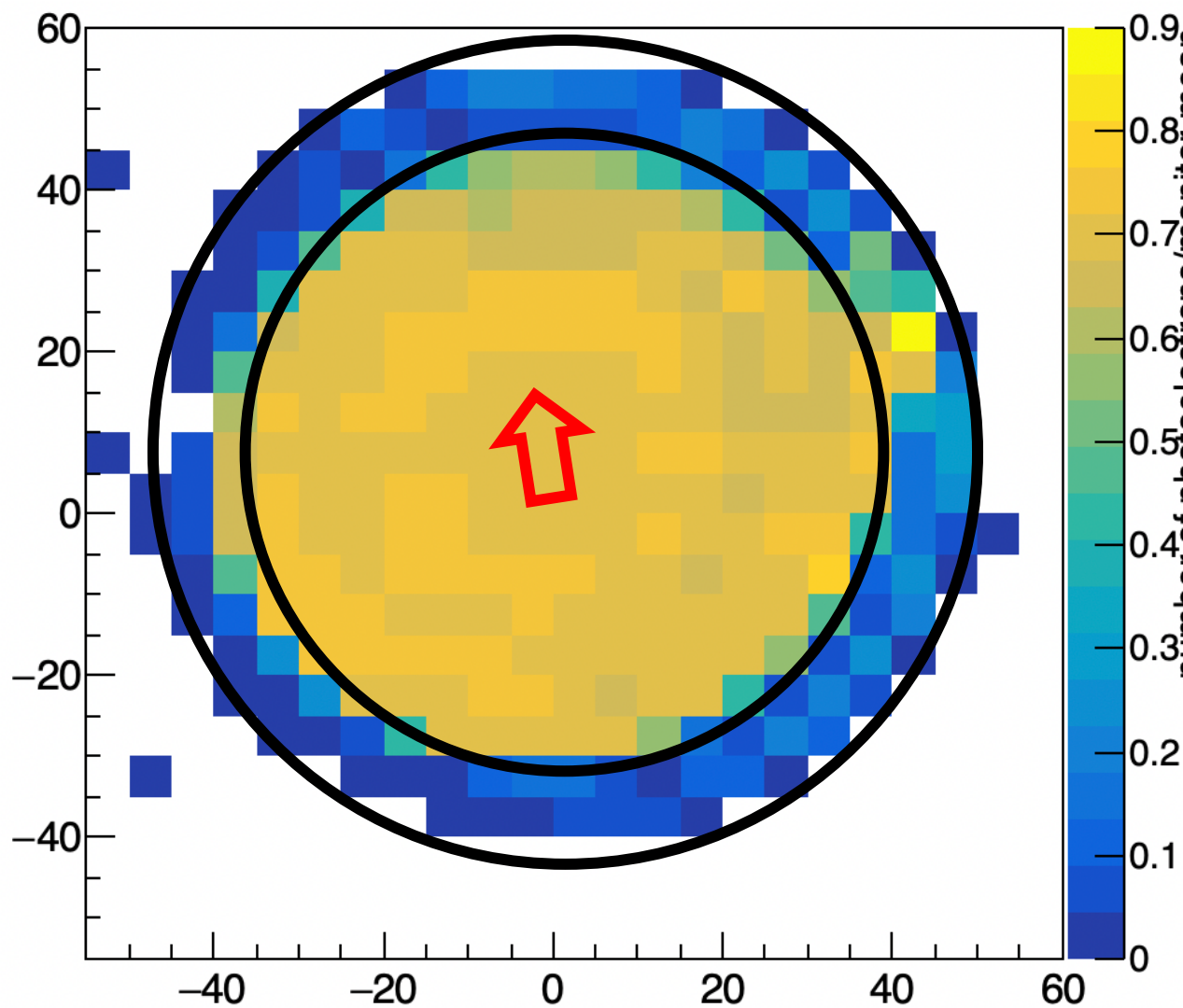
Backup





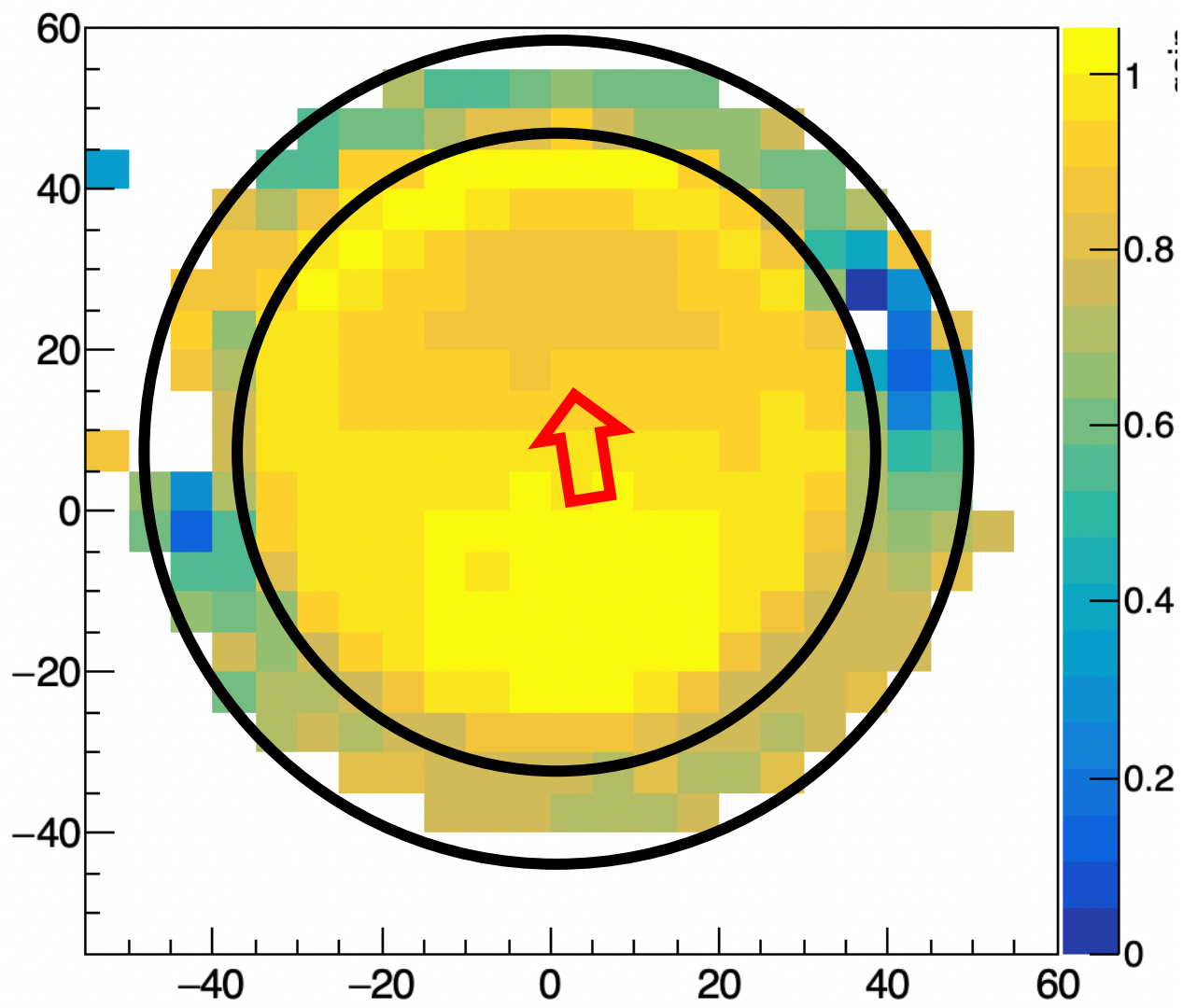
with 51° , 9mm reflector , 529 points

efficiency

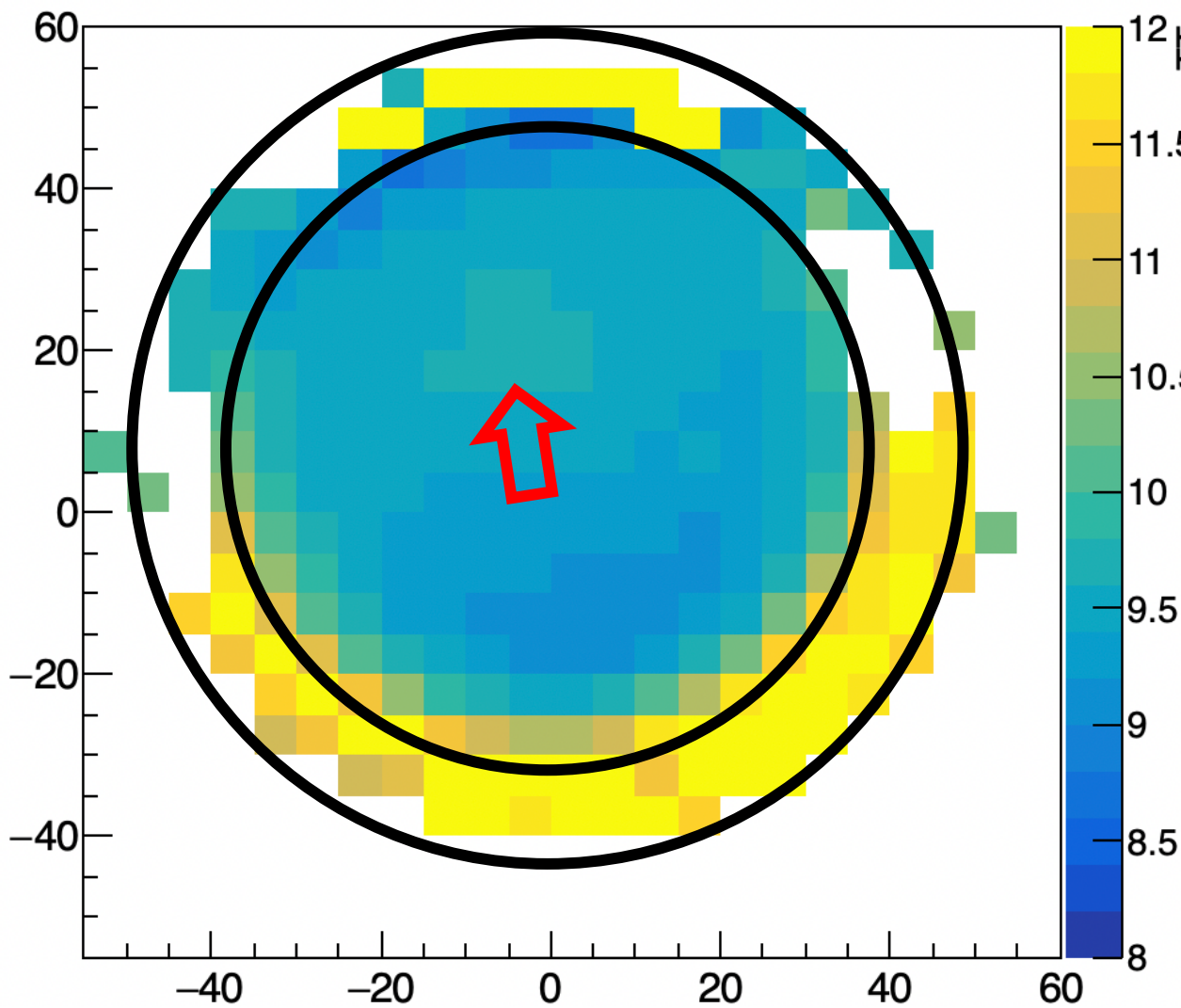


 the direction from the first dynode to the second dynode

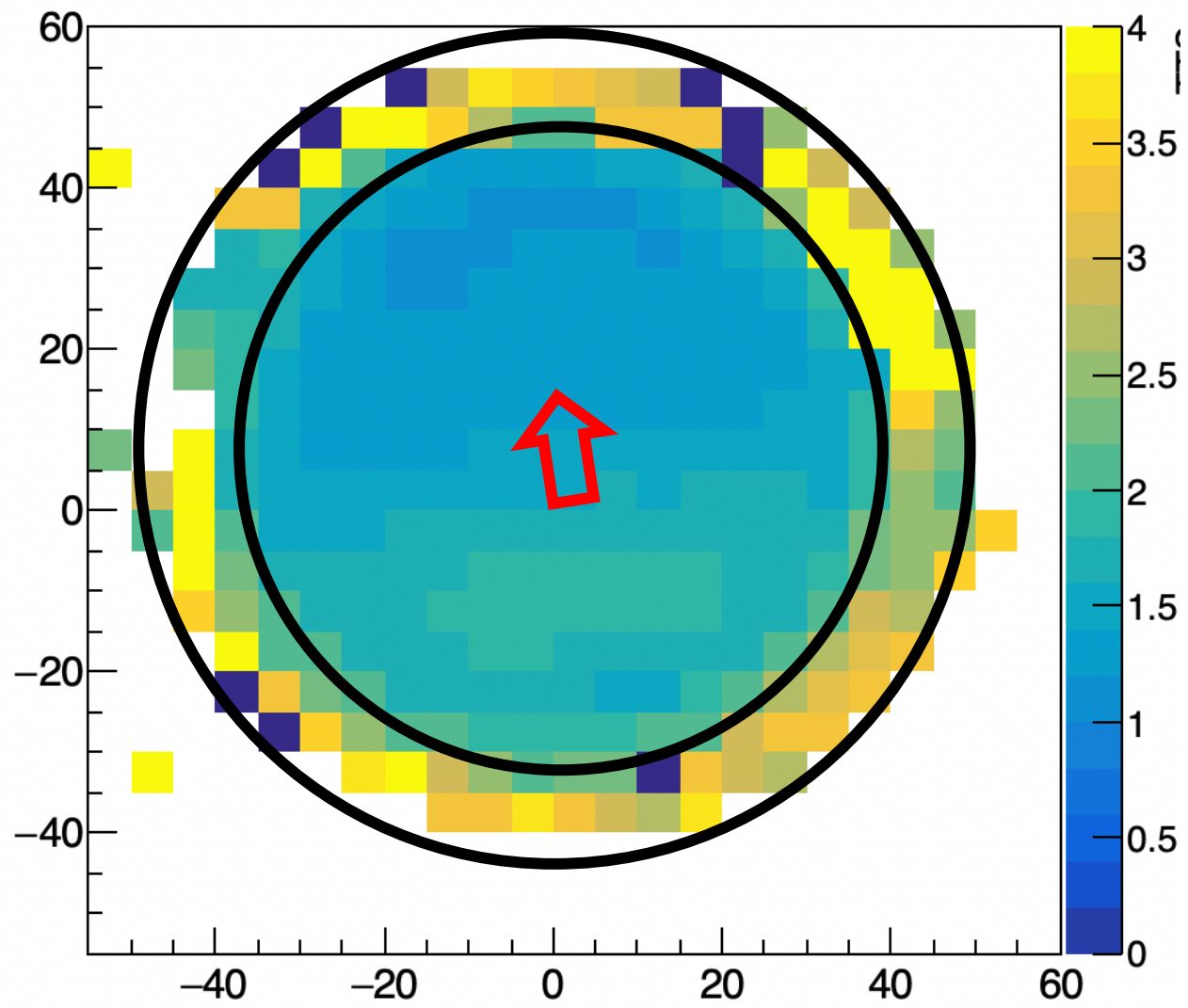
gain



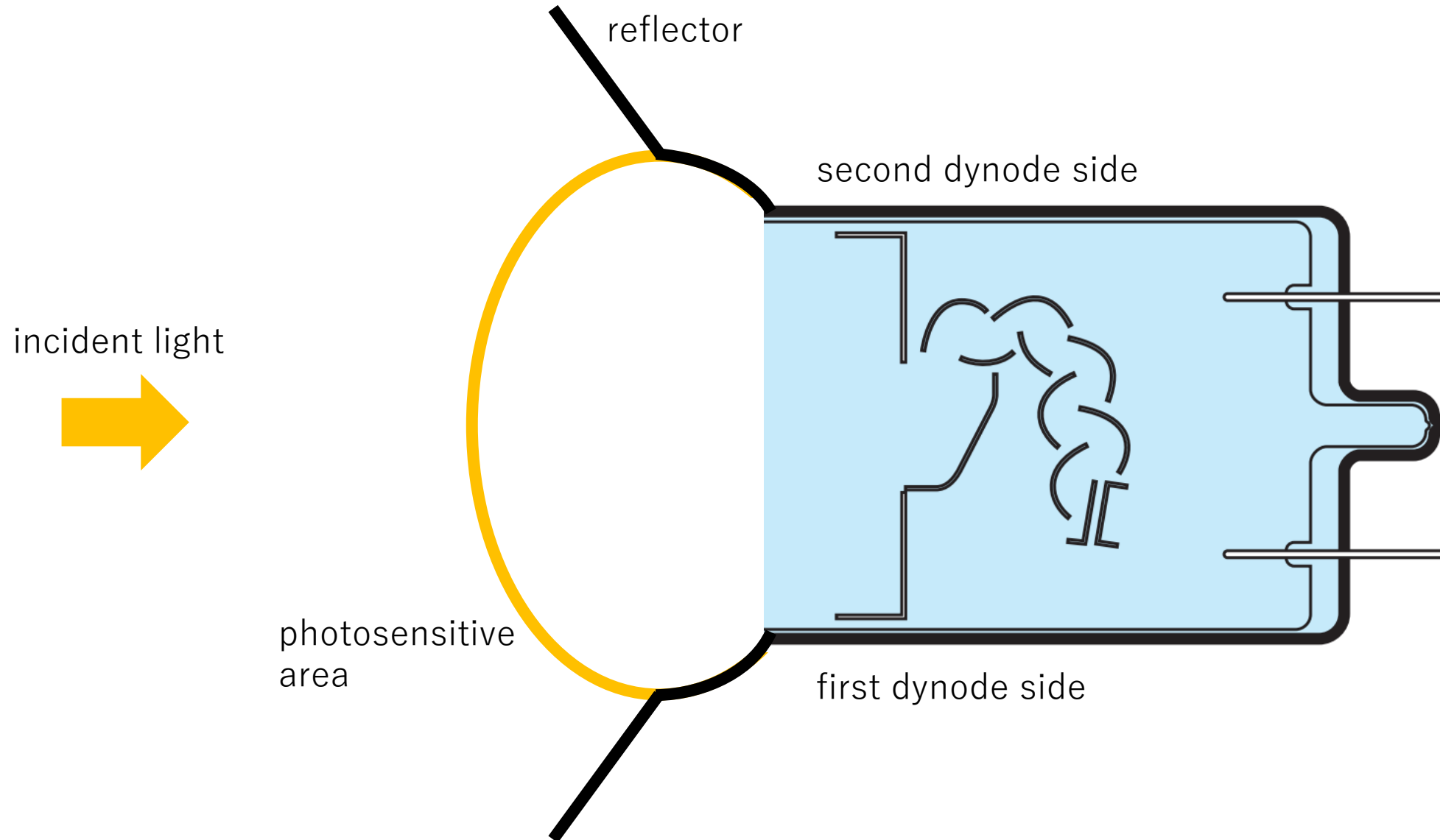
TT

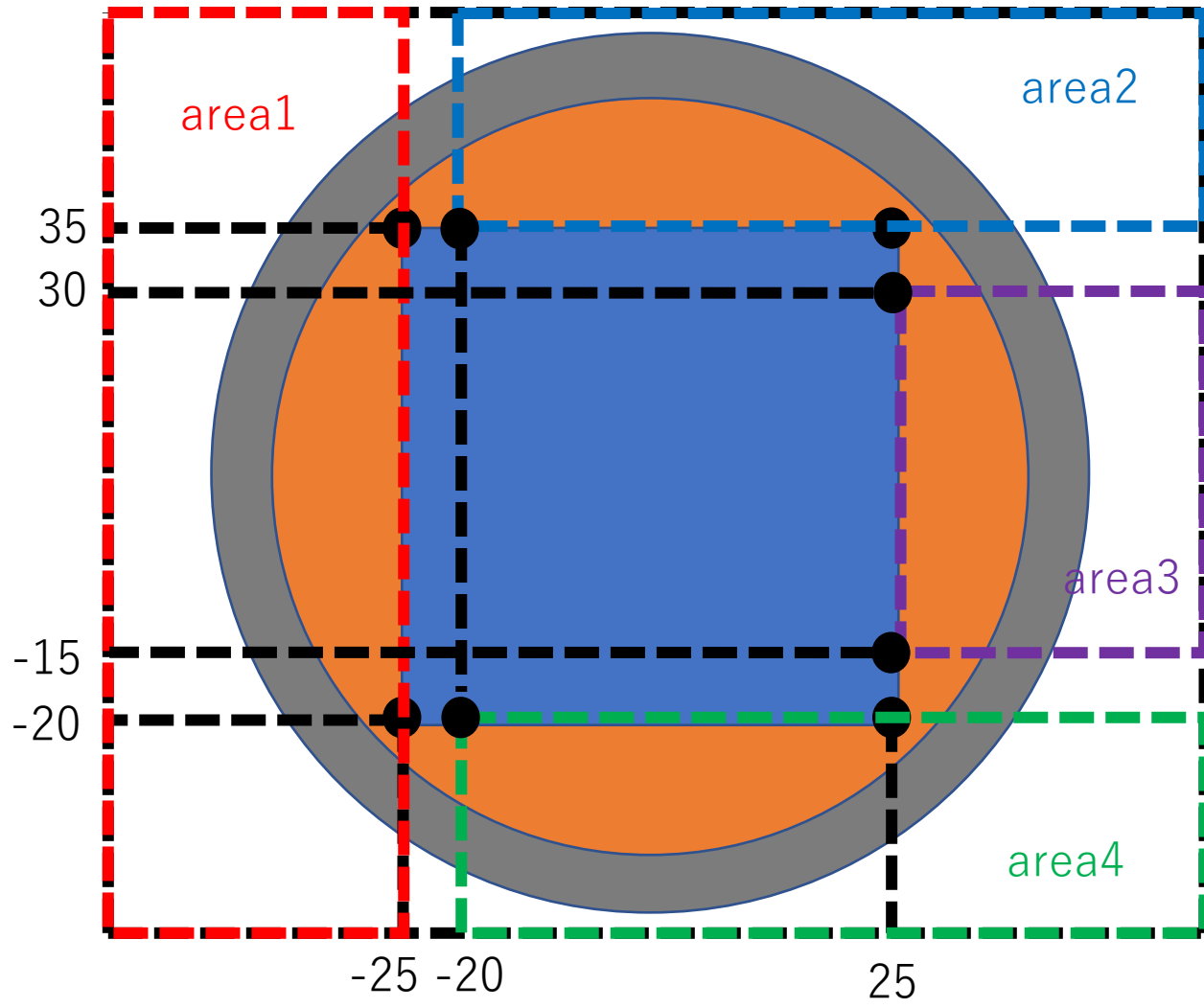


TTS

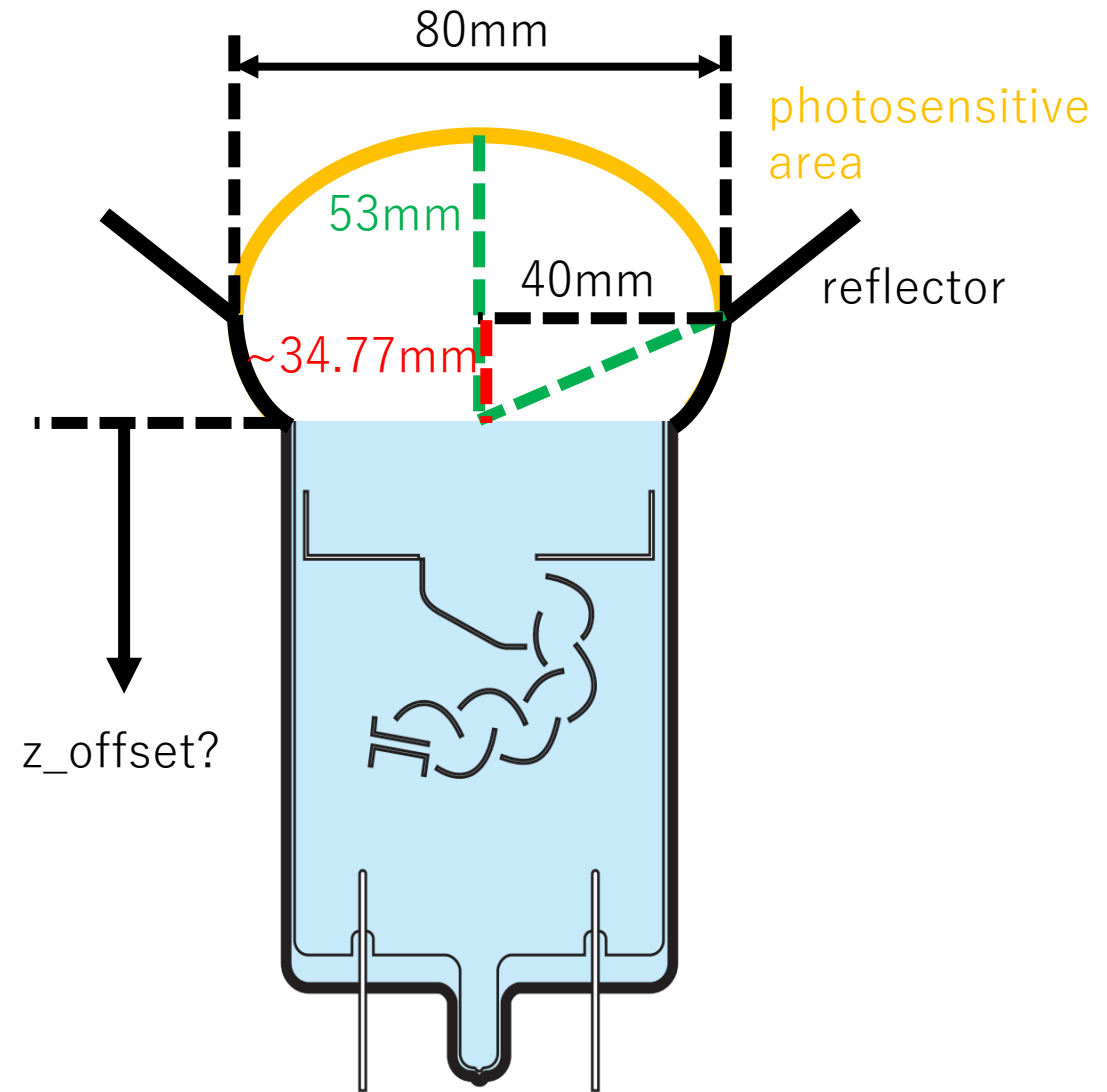


- As in the case without the reflector, suspected that there is a correlation with the position of the dynode.





3" PMT R14374



→ $z_{\text{offset}} = -34.77\text{mm}$?

WCSimDetectorConfigs.cc

```
545 id_reflector_height = 0.50*CLHEP::mm; // for a radius of 7.25mm, for hex: 5.4mm (radius of 6mm)
546 id_reflector_z_offset = -34.77*CLHEP::mm; //from KM3Net CAD drawings
547 id_reflector_angle = 51.*CLHEP::deg; // Need to be remeasured for different PMT curvature
548 mPMT_pmt_openingAngle = 8.7*CLHEP::deg; // for hex: 8.5deg
```

angle = 51° means the one used at IPMU

When generated with the above condition,
the process was aborted.

Error message→

```
=====
----- EEEE ----- G4Exception-START ----- EEEE -----
*** G4Exception : GeomMgt0002
        issued by : G4SmartVoxelHeader::BuildNodes()
PANIC! - Overlapping daughter with mother volume.
        Daughter physical volume reflectorWCPMT
        is entirely outside mother logical volume WCPMT !!
*** Fatal Exception *** core dump ***
**** Track information is not available at this moment
**** Step information is not available at this moment

----- EEEE ----- G4Exception-END ----- EEEE -----

*** G4Exception: Aborting execution ***
アボートしました
```

```
545 id_reflector_height = 0.10*CLHEP::mm; // for a radius of 7.25mm, for hex: 5.4mm (radius of 6mm)
546 id_reflector_z_offset = -34.77*CLHEP::mm; //from KM3Net CAD drawings
547 id_reflector_angle = 51.*CLHEP::deg; // Need to be remeasured for different PMT curvature
548 mPMT_pmt_openingAngle = 8.7*CLHEP::deg; // for hex: 8.5deg
```

: not overlapped