

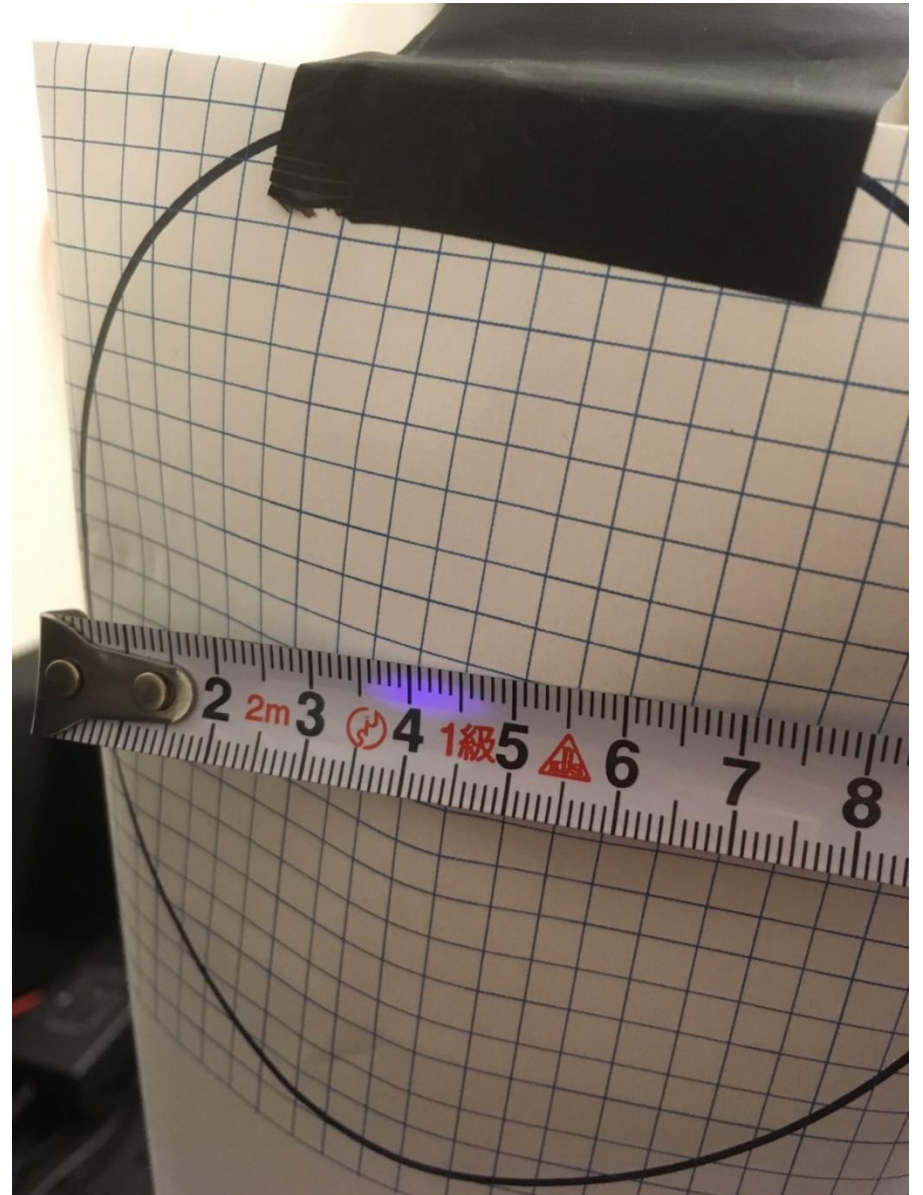
Status Update

04/12/2019

TUS Nao Izumi

Angle measurement

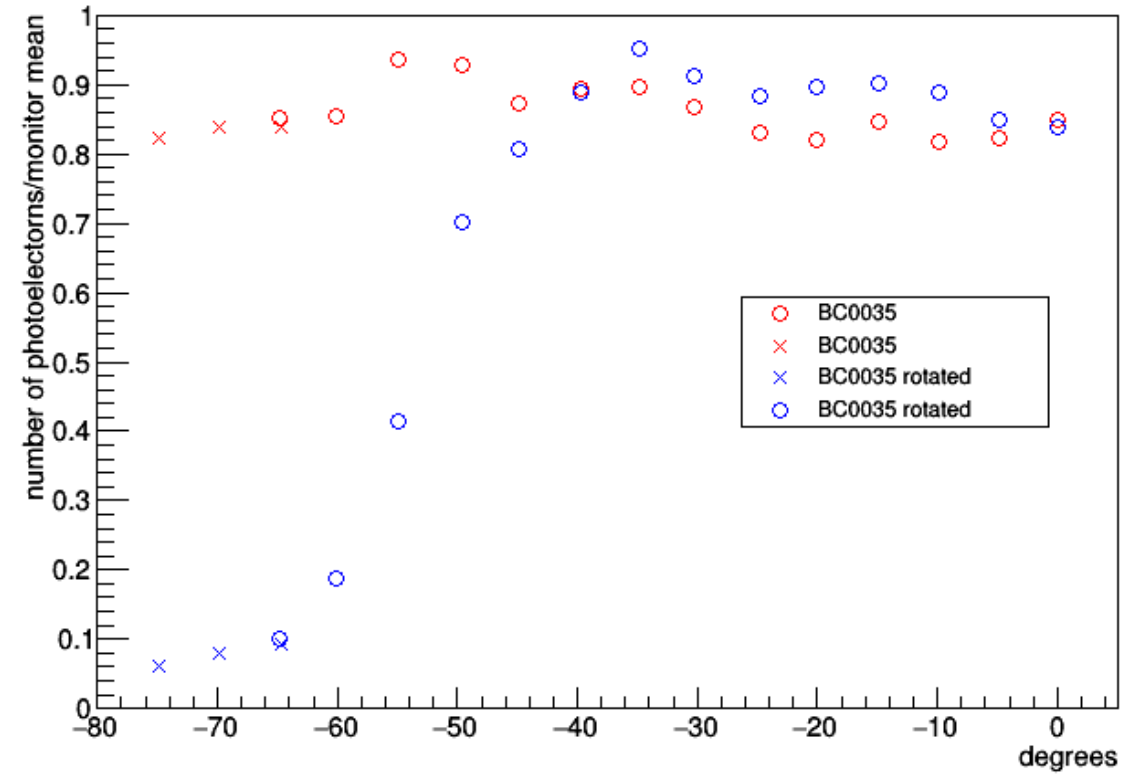
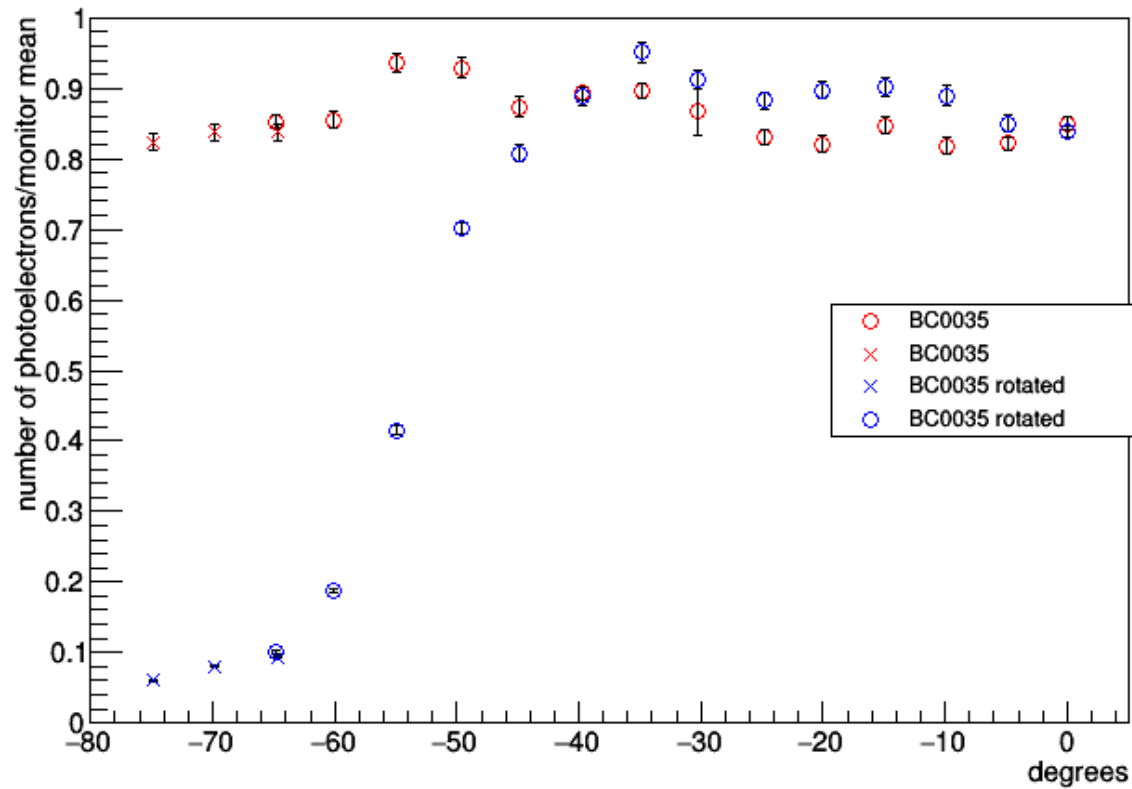
- Another angle measurement with smaller LED spot.
- 1 cm $\rightarrow$ 0.6 cm



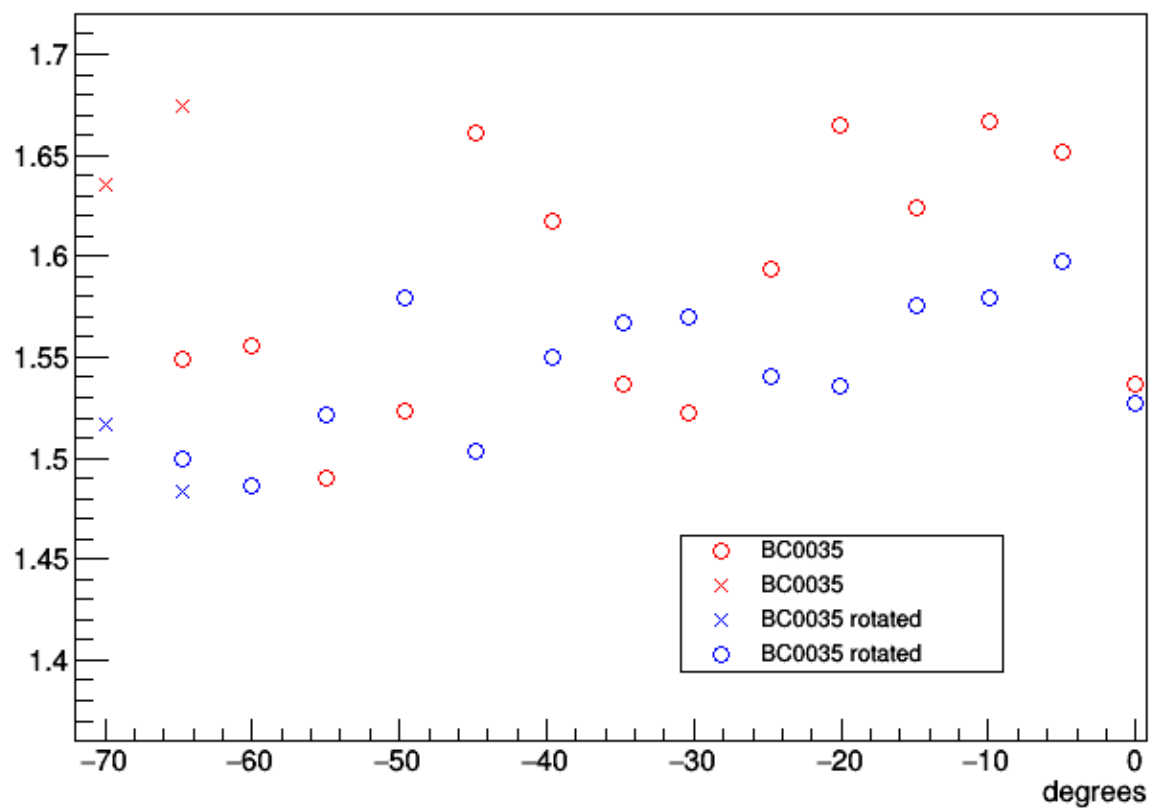
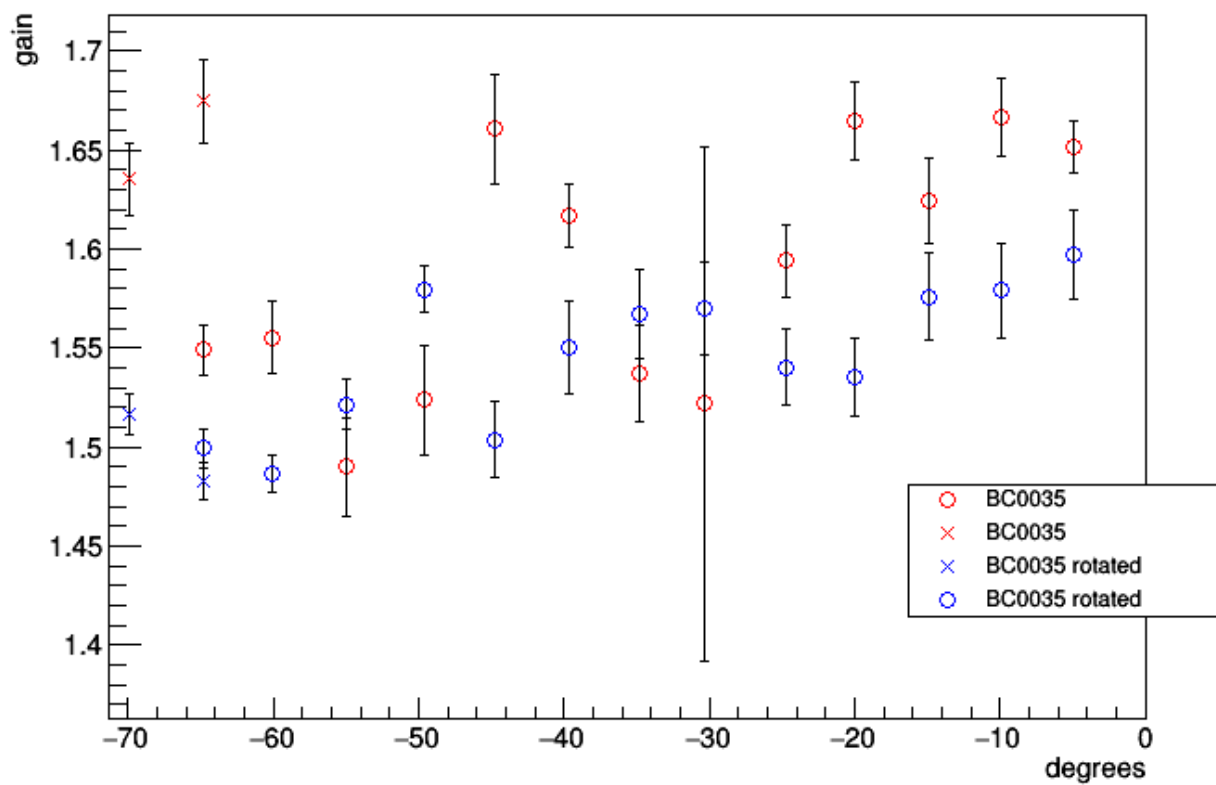
efficiency

The distance between the PMT and the laser (radius) is 105 mm.

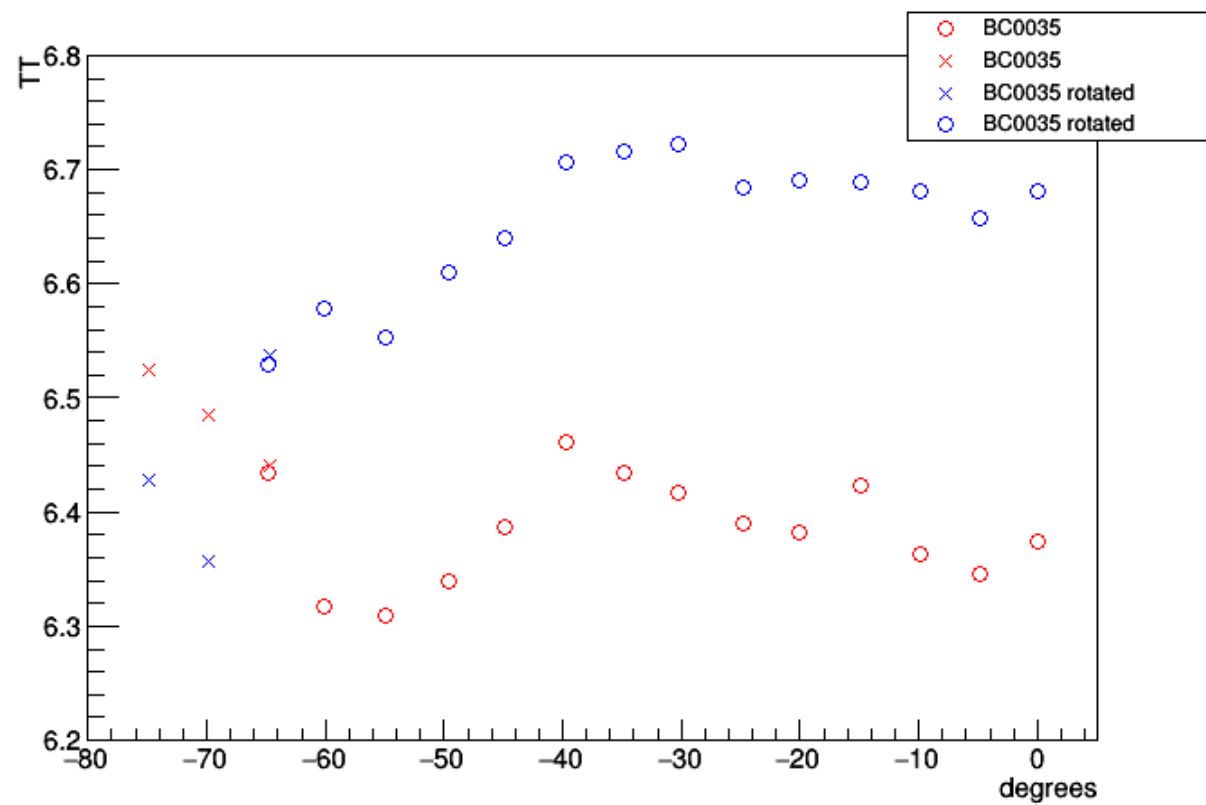
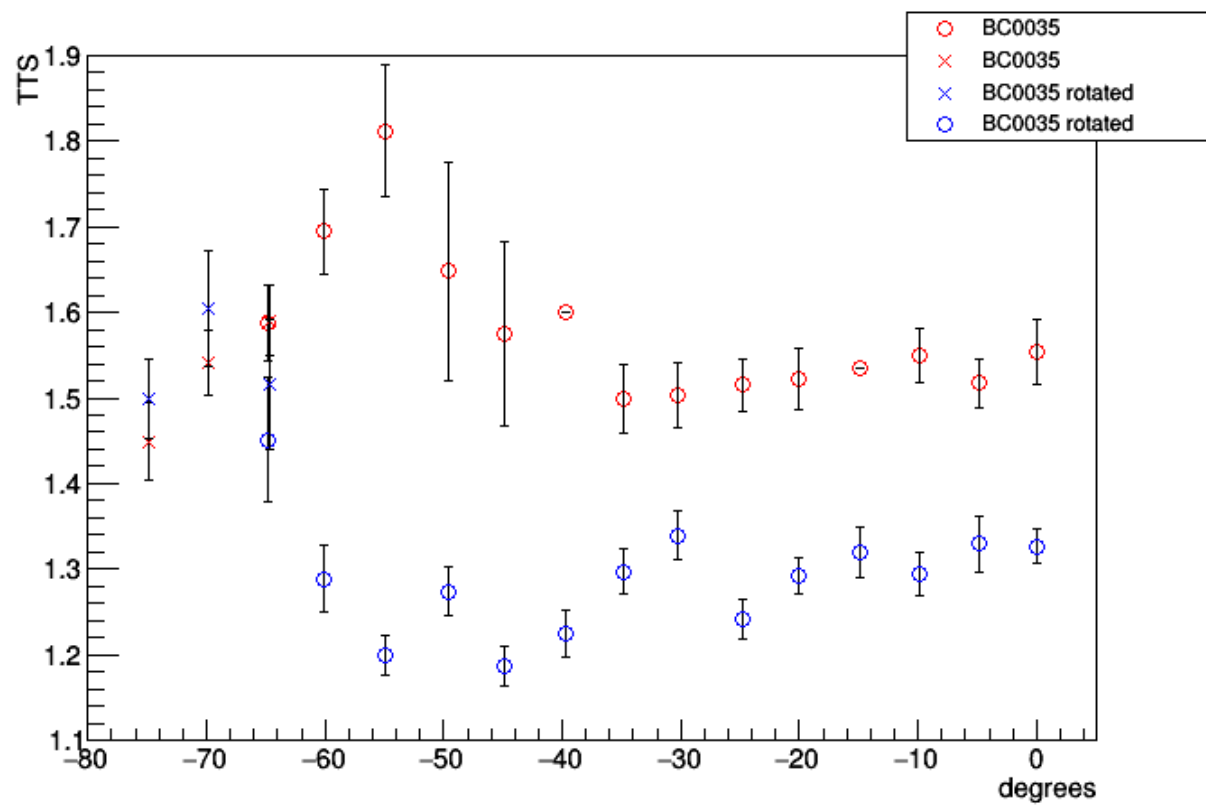
The data at -65 to -75 degrees were taken with different radius (115 mm).

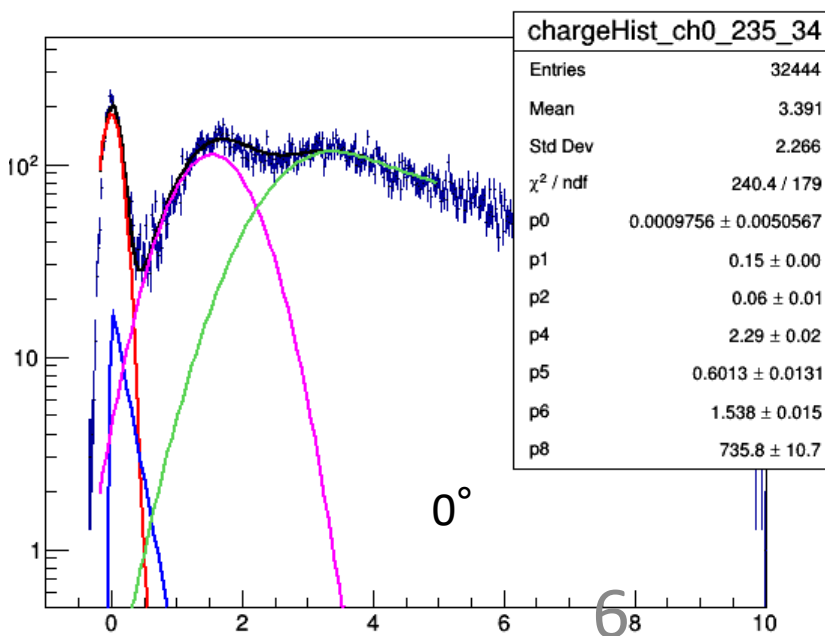
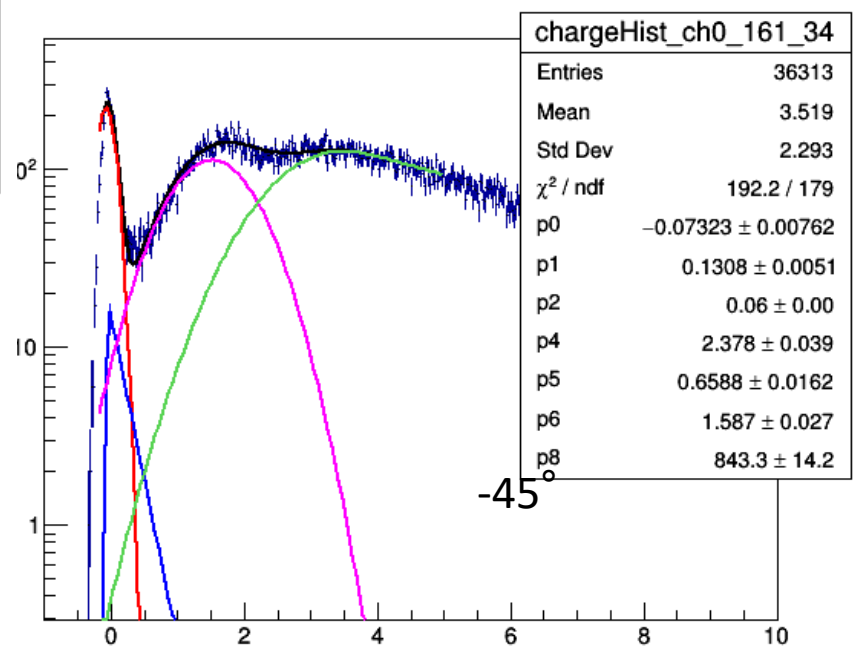
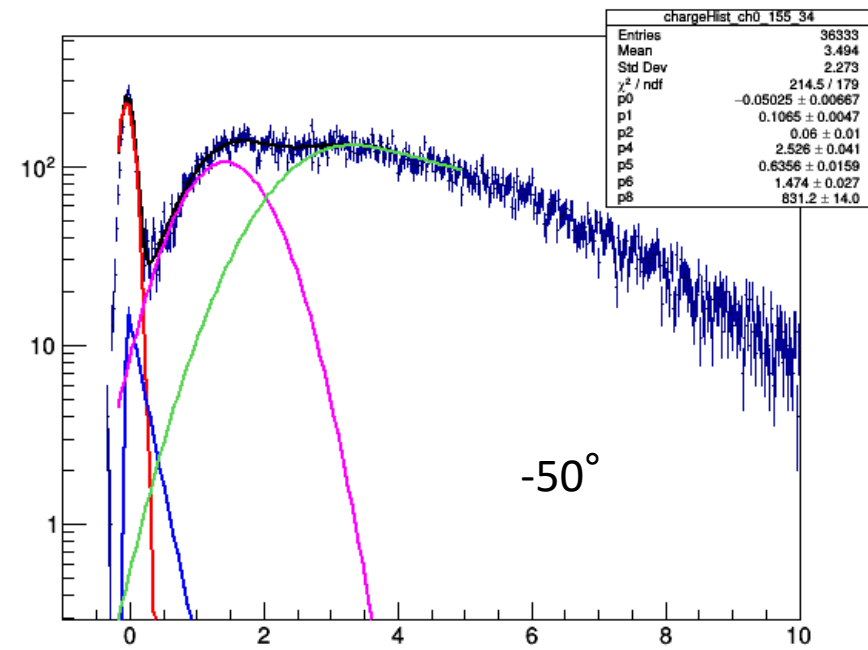
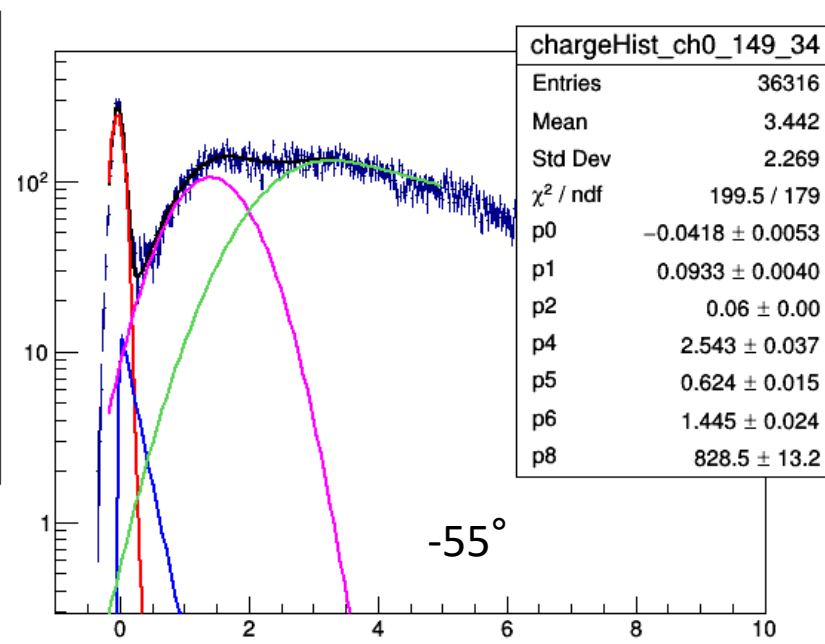
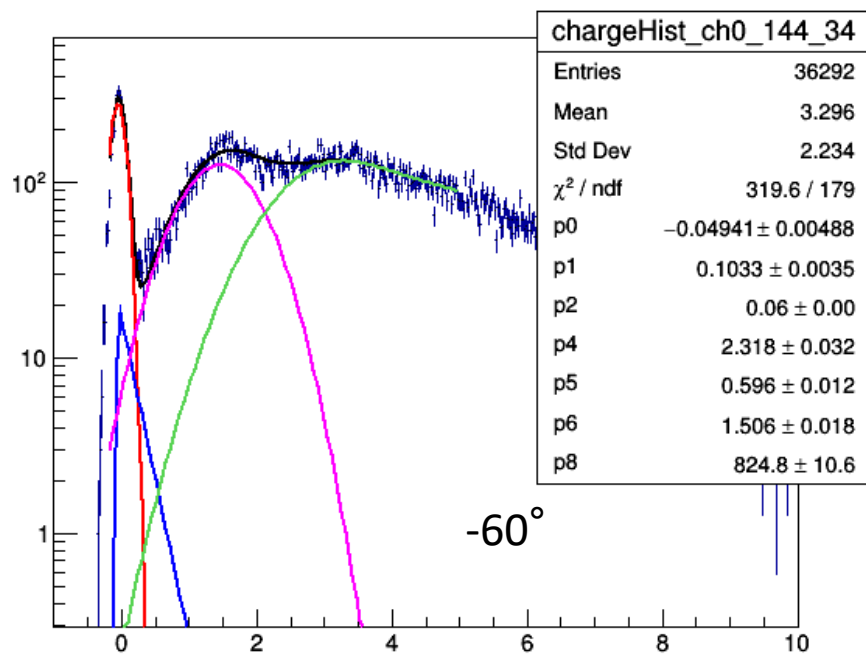
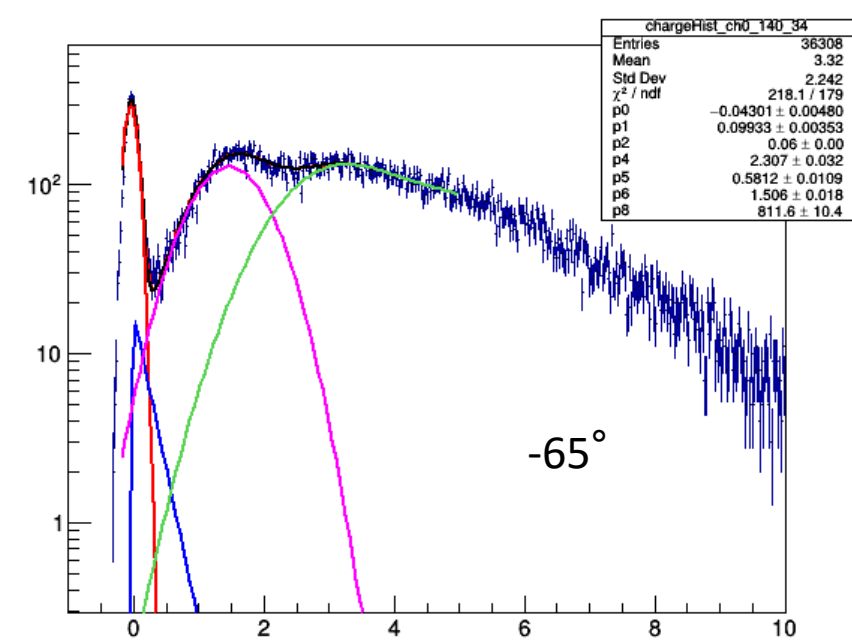


gain

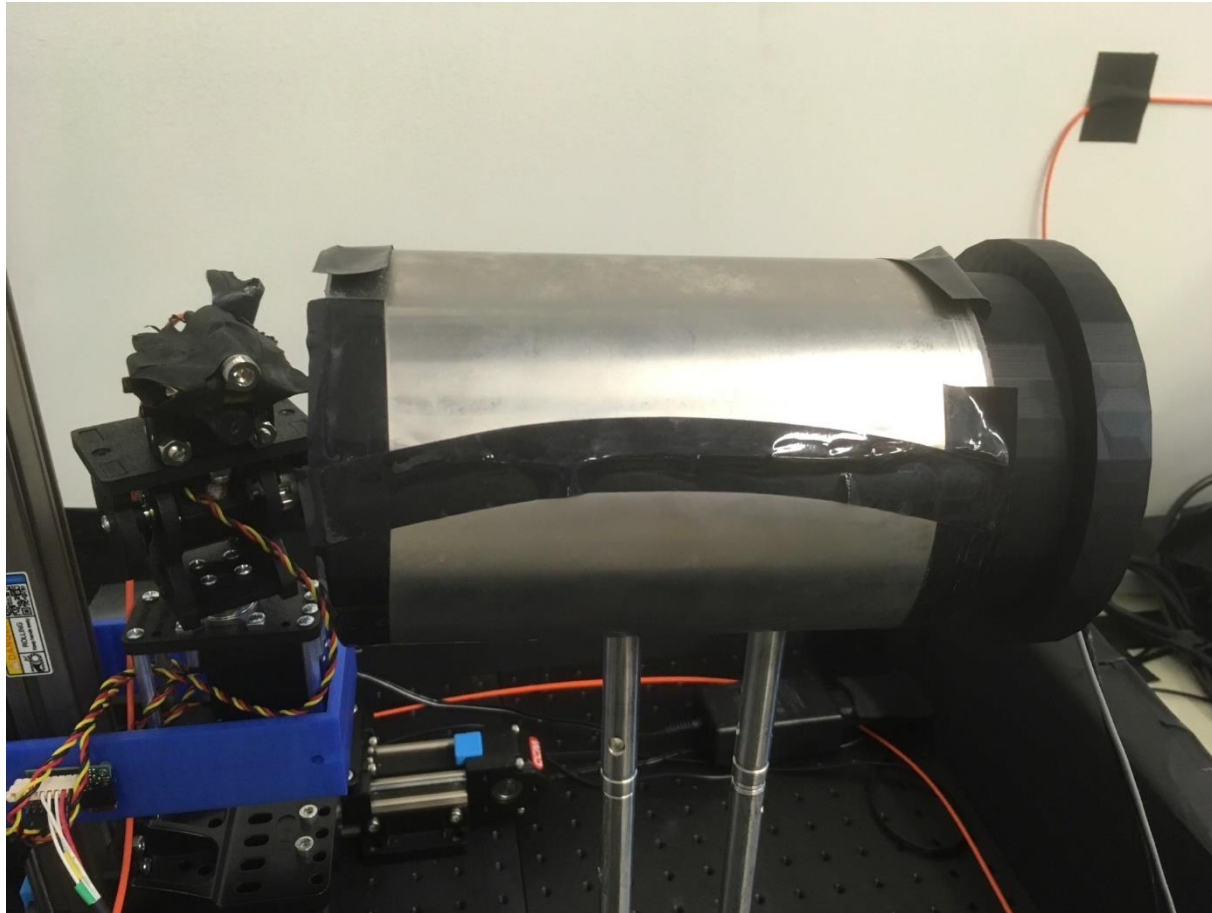


TTS and TT





Measurement after rotation

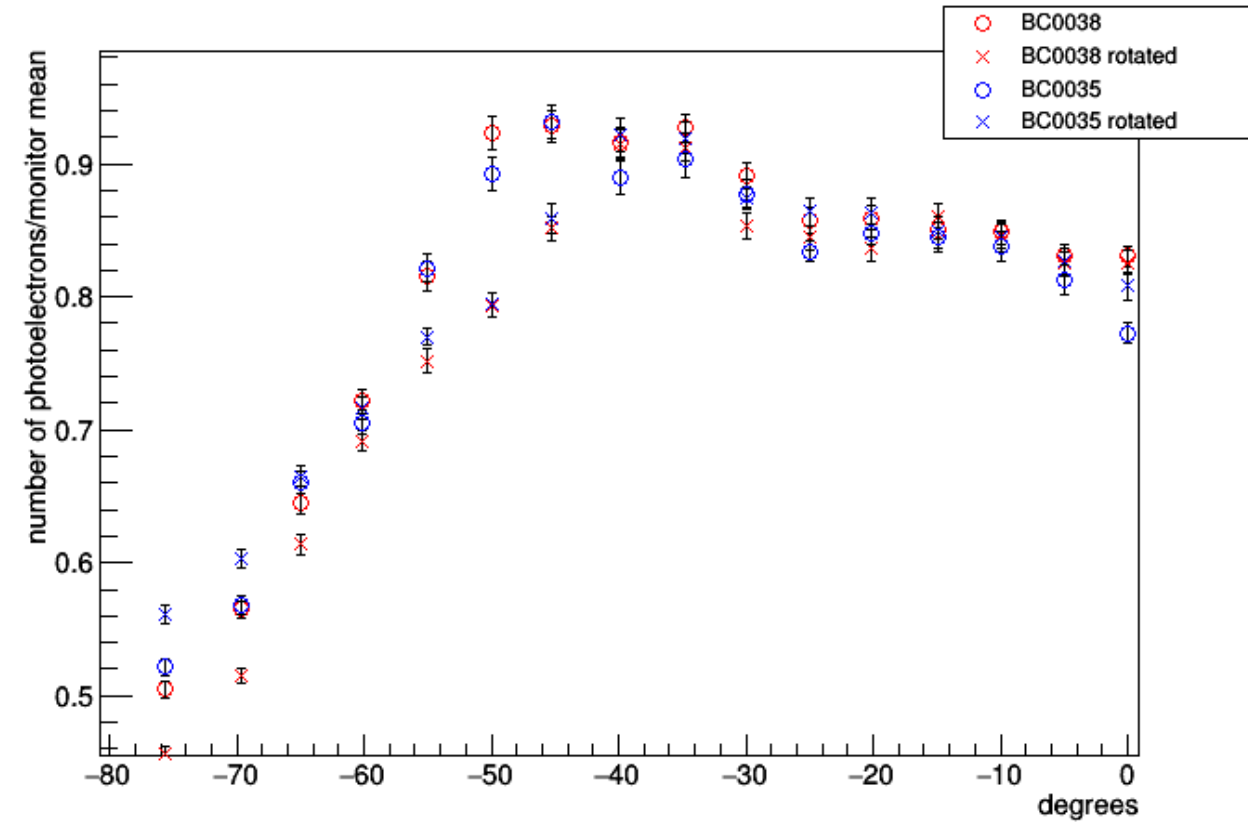
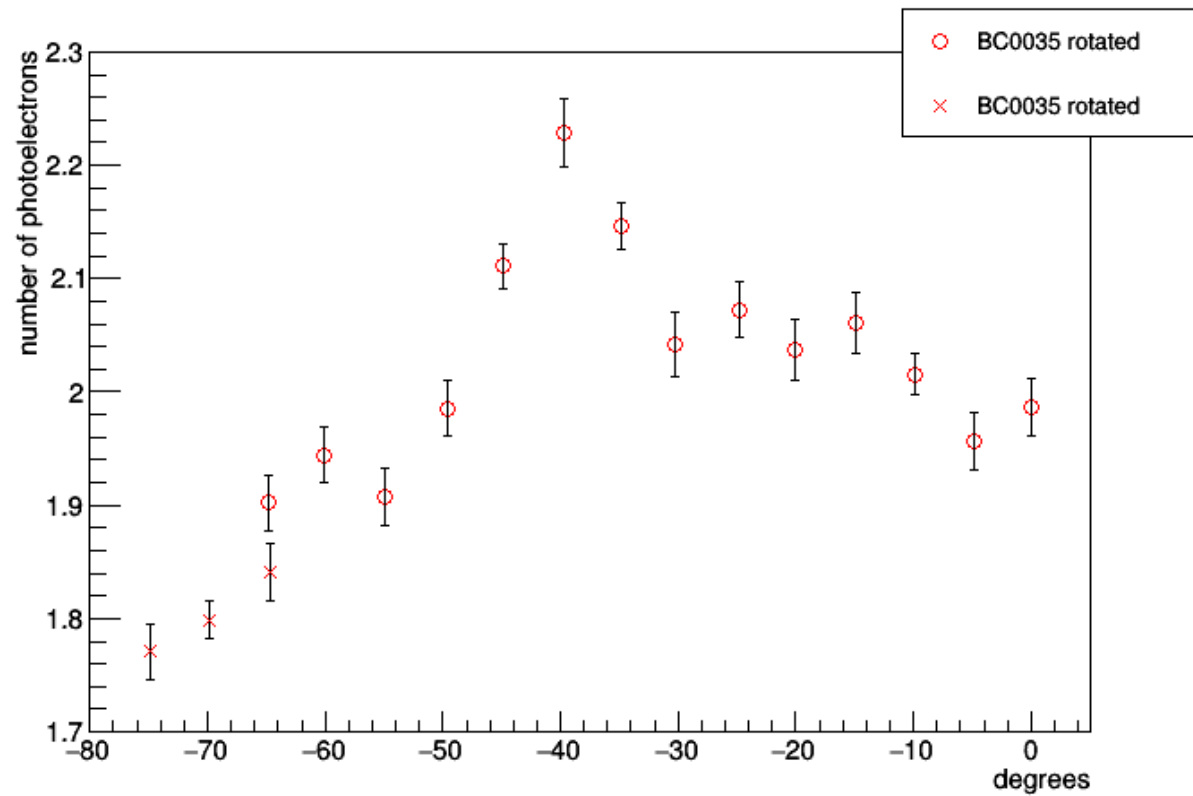


The HV cable was too short that the PMT holder was withdrawn when I put the dark box.

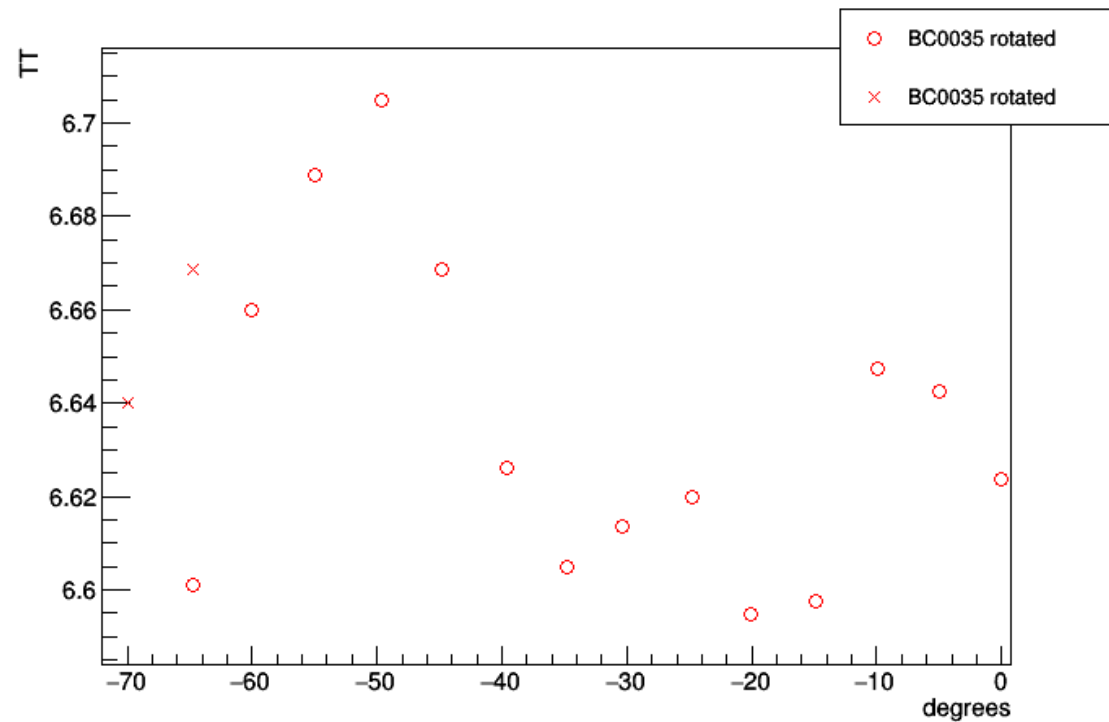
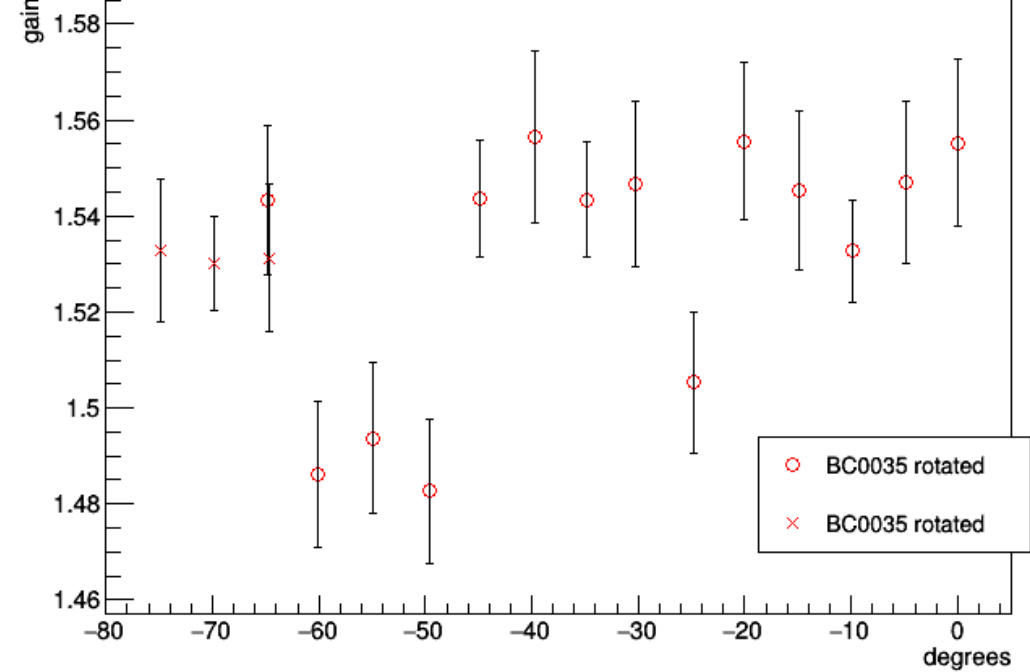
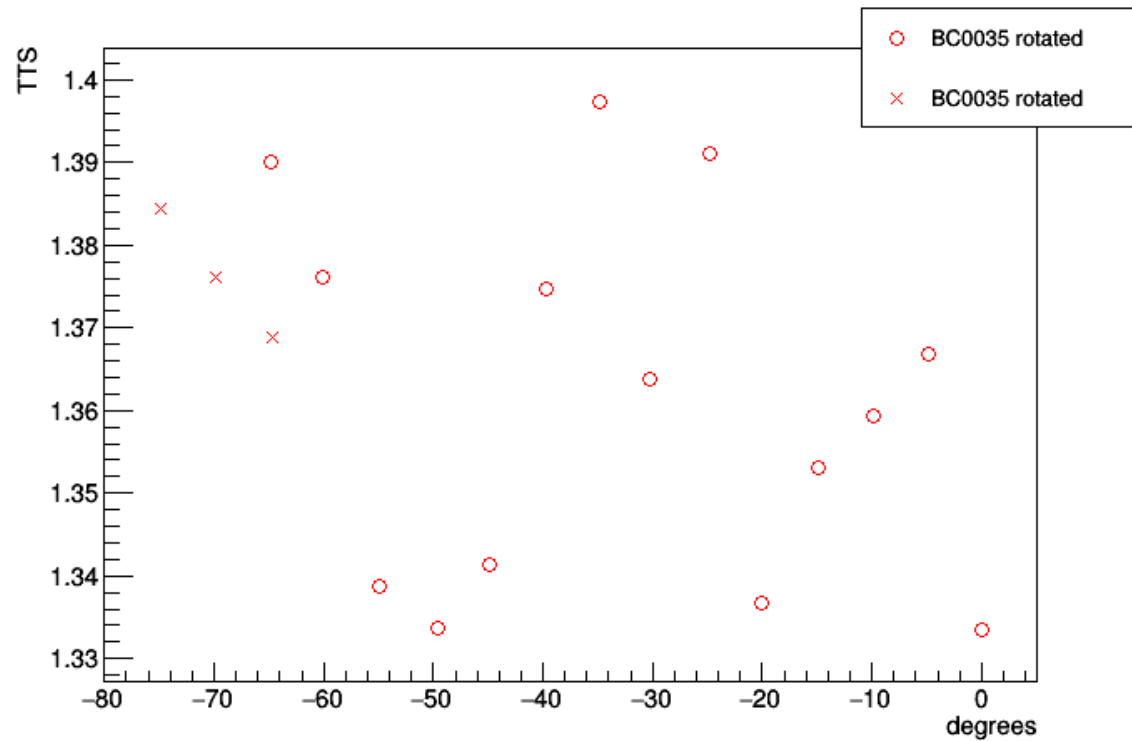
I moved the PMT toward the digitizer, and took the measurement again.

Efficiency

Compared to the previous measurement, the increase of efficiency at 0 to -45 degrees was larger.



Gain, TTS and TT



The momentum of electron

- Photoelectric effect

$$K = h \times \frac{c}{\lambda} - W$$

- The photocathode is made of bialkali (Sb-Rb-Cs).
- I calculated the momentum of the electron using the work function of Sb-Cs (2.0 eV), because I couldn't find the one of bialkali.

- $K = 4.14 \times 10^{-15} \text{ eV} \cdot \text{s} \times \frac{3.0 \times 10^8 \text{ m}}{402 \text{ nm}} - 2.0 \text{ eV} = 1.1 \text{ eV}$

- $U = -1200 \text{ V} \times 1.6 \times 10^{-19} \text{ C} \sim -1200 \text{ eV}$