Status Report

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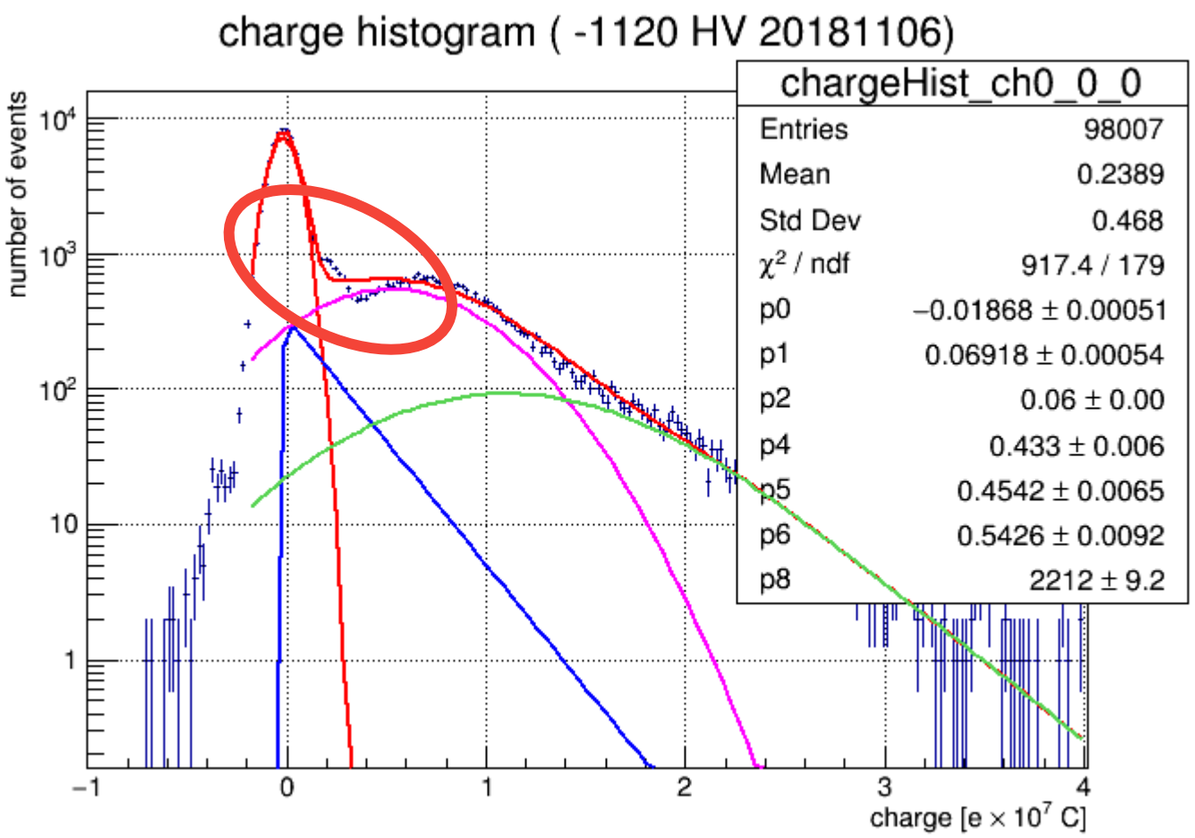
So far

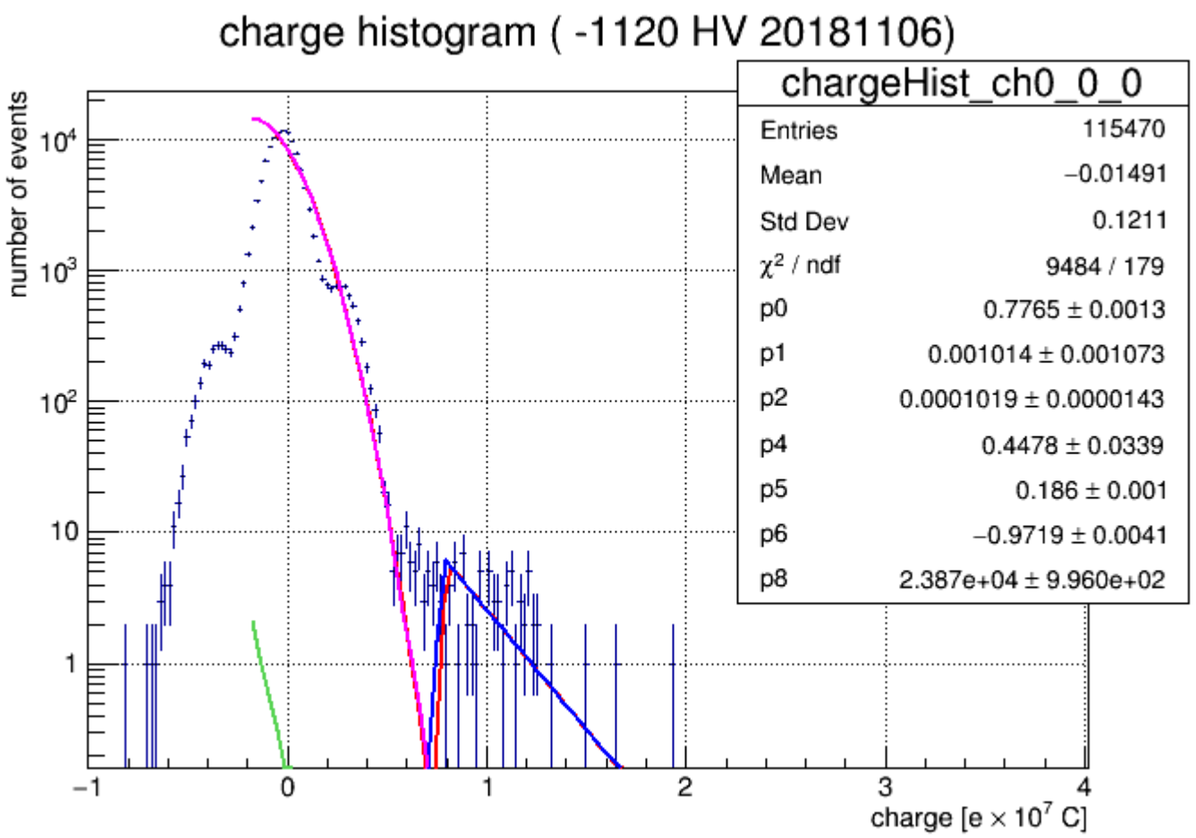
- I measure about BC0035, not BC0038 used in Jul. and Sep.
- LED setting was changed to avoid the un-uniform light.
  - the orange cable produces the “ring” light in which the center region has less photons and the boundary part has much more photons.
  - to solve this problem, we used the old splitter cable (90%) which seems to produce uniform light.
  - and the LED intensity was increased to generate the same Poisson mean as the result before.

orange cable “ring” light (not uniform)

- But the fit results were worse than the previous measurement for BC0038.

Fitting result was worse

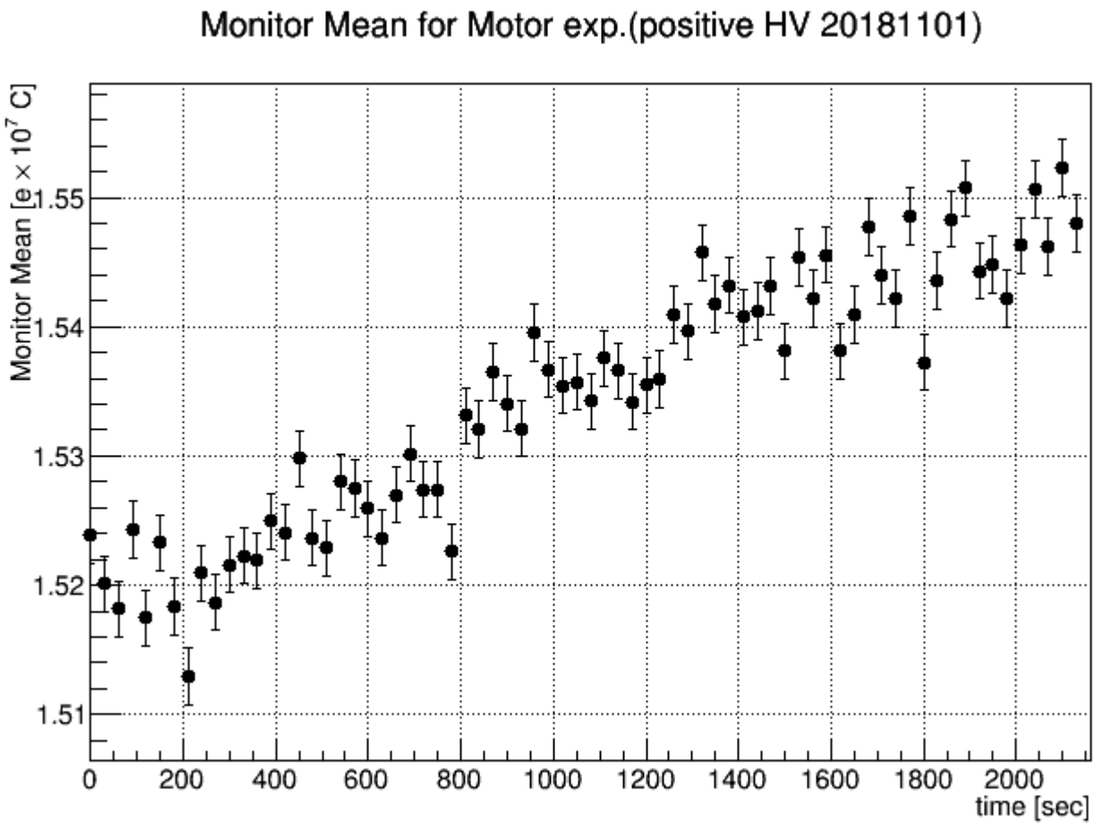


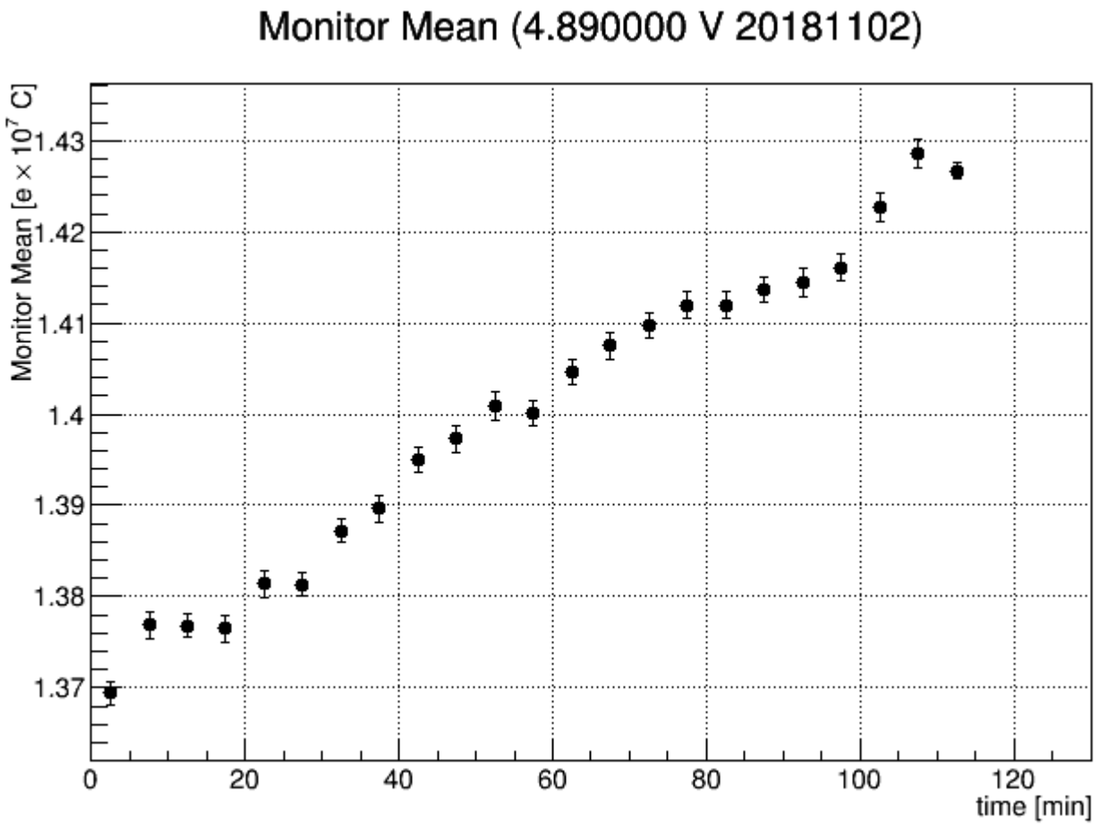


LED off

- There is some strange structure around the valley (in red circle).
- The previous result for BC0038 has no structure like this.
  - this might was hidden in the pedestal distribution?
- And maybe, this structure is caused by cable issue..?
  - because the noise appeared in the oscilloscope when bringing signal cable and “Monitor PMT signal cable or Trigger cable” closer together. otherwise some other cable issue like HV supplier.

Monitor PMT mean





- ~4% increase in 2 hours.
  - I don’t know whether this increase is caused by the Monitor PMT or by LED. But anyway I should find the time this plots become stable.

To do

- I will firstly measure about BC0035.

1. Investigate the cause of noise
2. Stability of Monitor PMT (or LED)
   - Look for the stable region of the mean.
3. Stability of 3”PMT
   - Look for the stable region of Poisson mean.
4. Confirm whether after-pulses are included, or not.
   - enlarge the time window of each event, and check the time histogram.
5. Make TTS plots:
   - number of p.e. vs. TTS
   - and fit with the function: y = parameter / $\sqrt{x}$