

Status Report

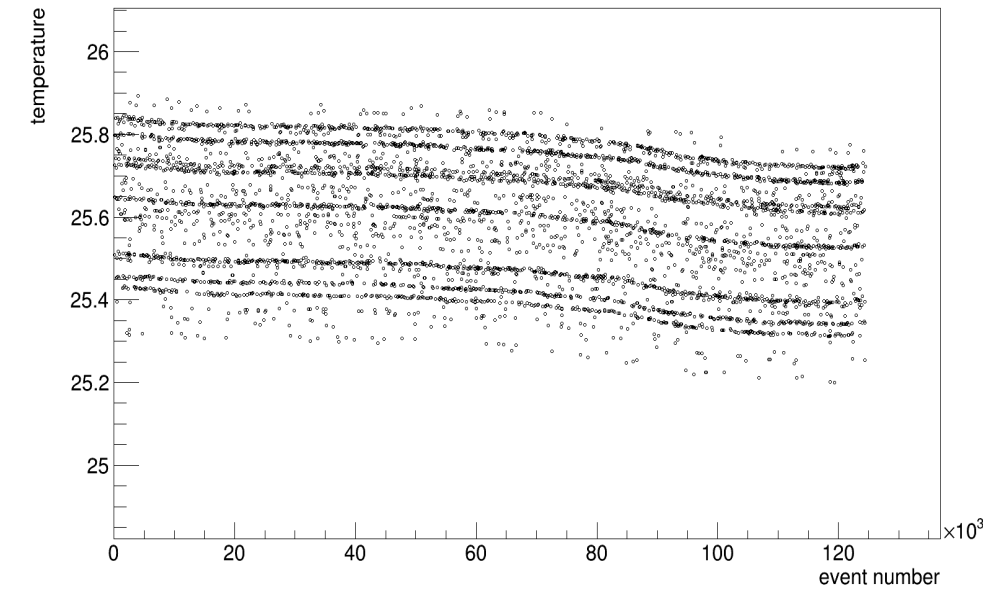
2/9/23

Motivation

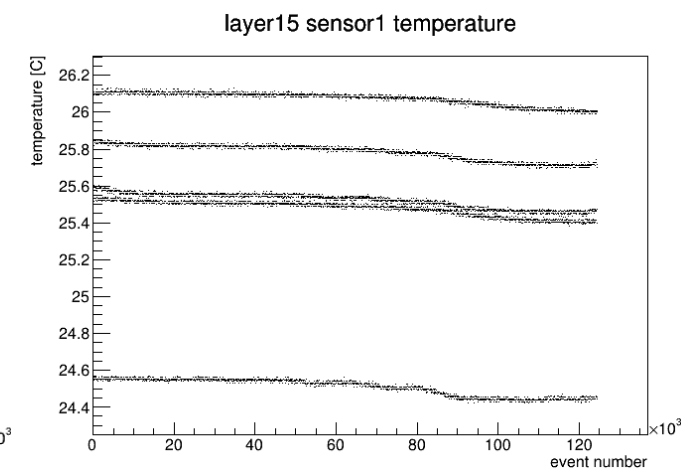
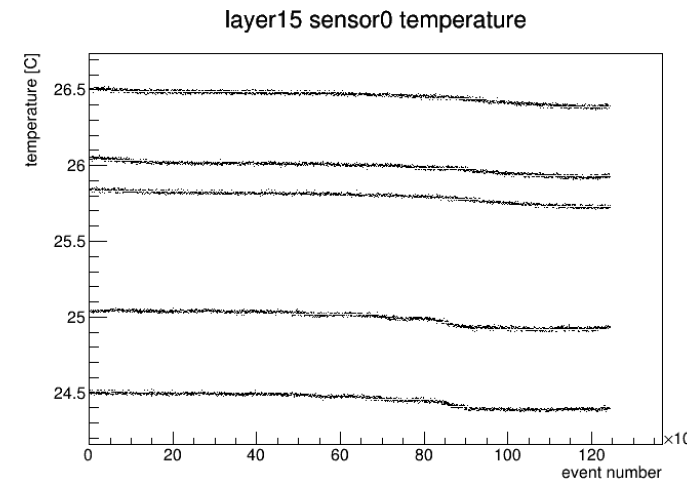
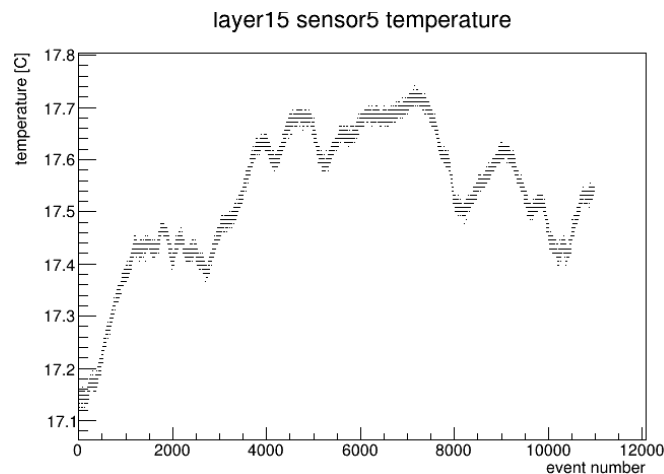
- MIP Peak Value evaluation
 - Temperature correction
- Angular correction
 - Strip splitting algorithm
 - (Track fit)
 - (layer alignment, position resolution)

ECAL Temperature

- Many channels have several temperature curves during one run
 - This is true for many runs
 - Temperature sensor might NOT be calibrated
- Temperature sensors also have many curves
 - Different situation from cosmic ray test
 - Problem at RawtoRoot or DAQ

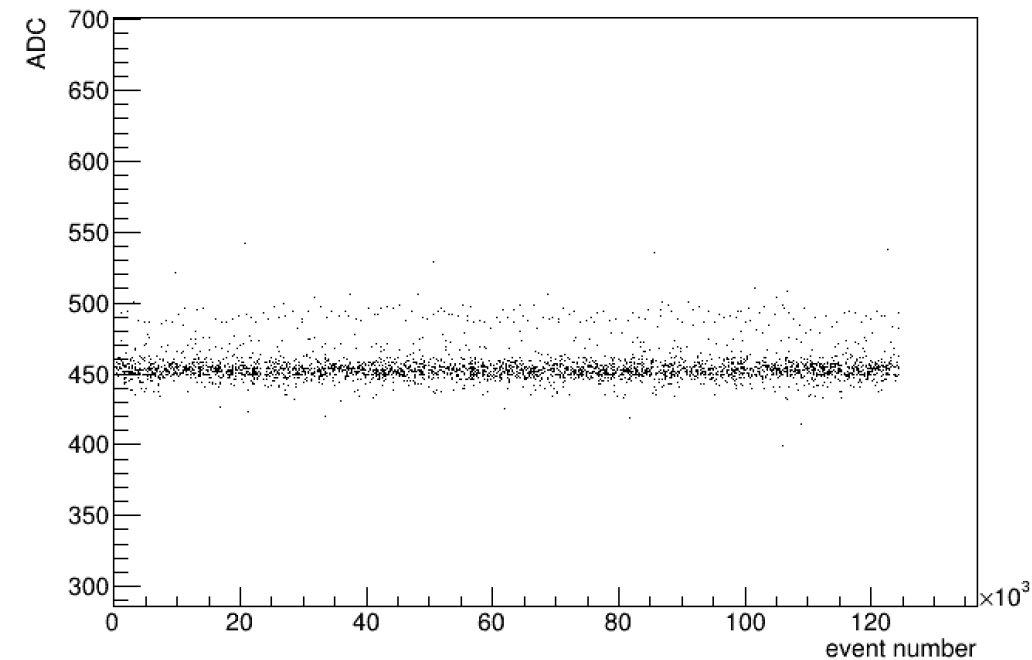
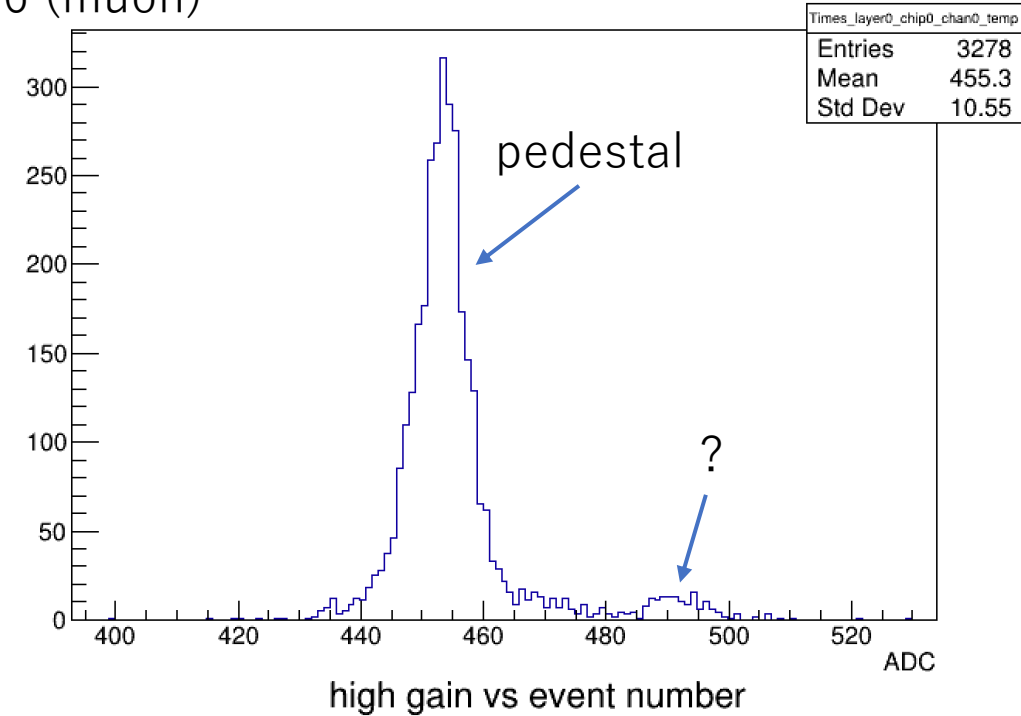


20210123_1040_cosmicRayTst.root



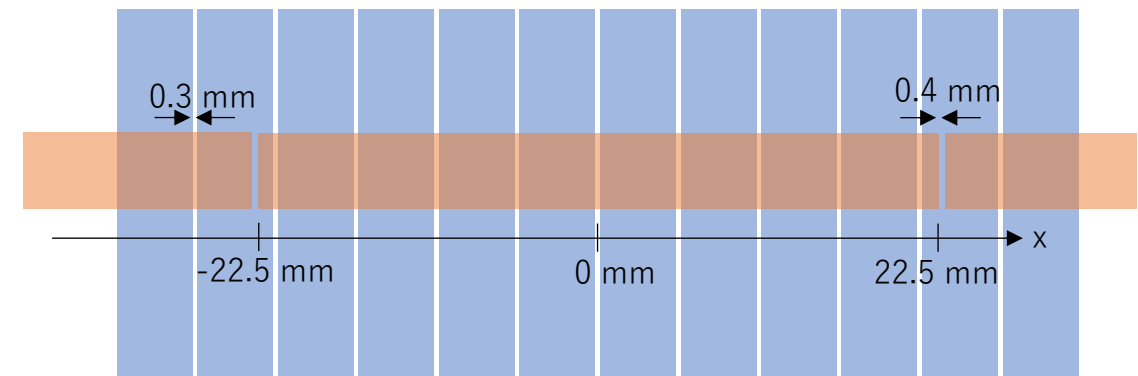
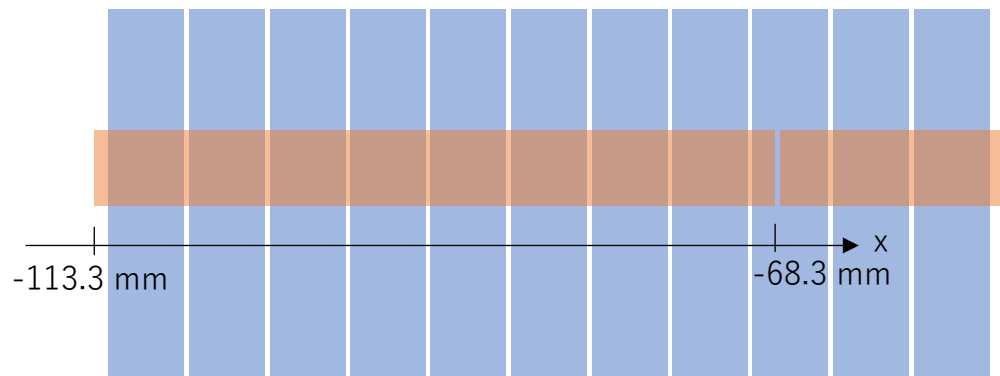
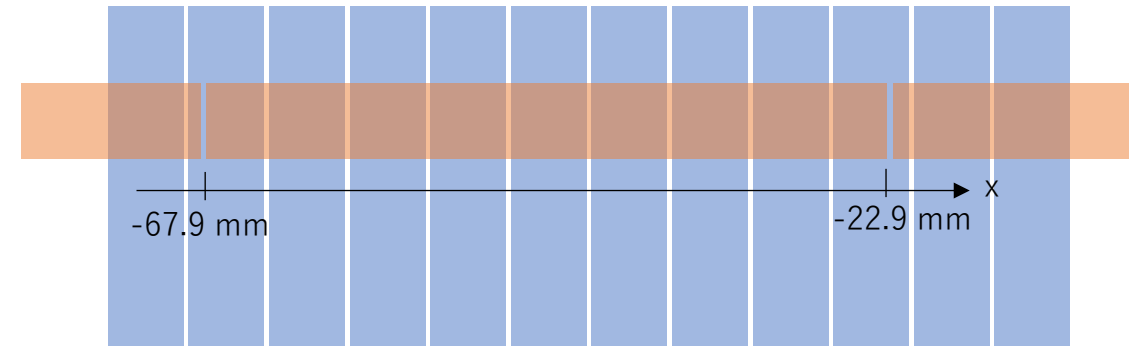
ECAL pedestal

- Some channels have a few peaks beside pedestal
 - DAQ problem?
 - seems to be independent from time evaluation
- No clues for the second peak
 - Ignored this second peak from the following analysis



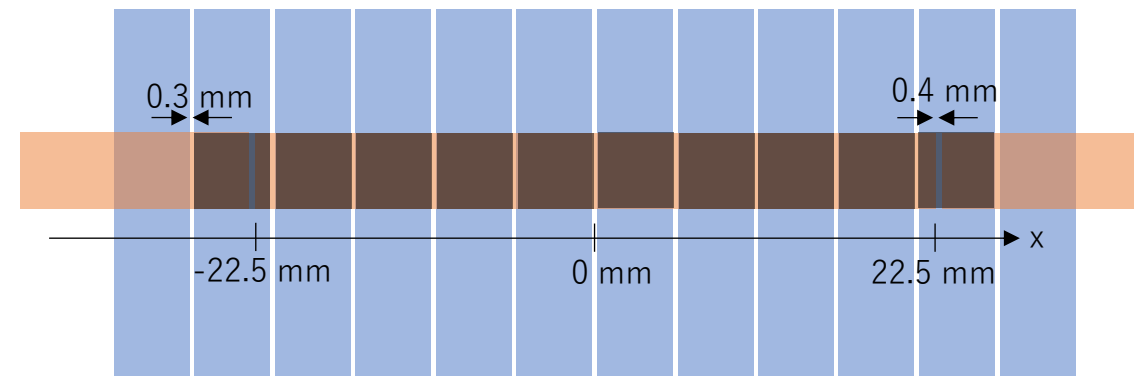
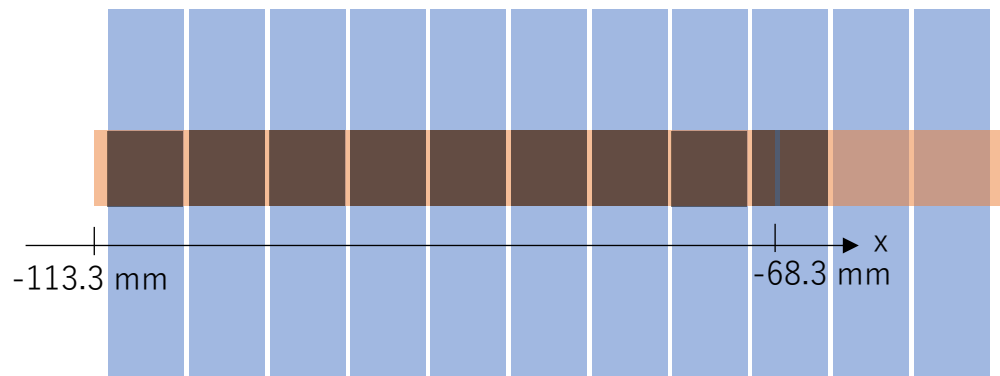
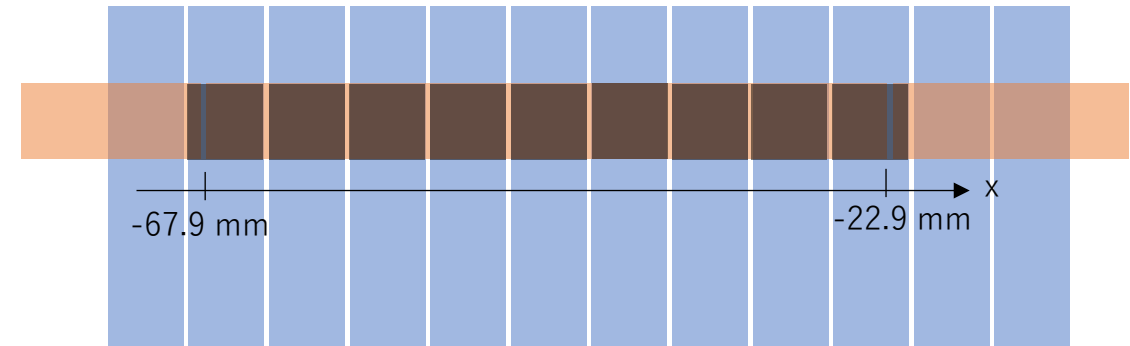
Strip Split Algorithm

- SSA is implemented (exactly the same code with Naoki's)
 - 45 mm strip → 9 (or 10) cells with 5×5 mm²
- Number of cells per strip is NOT always 9 due to the gaps and the alignment of strips
- Energy distribution
$$E_i = \frac{(E_{upper} + E_{lower})_i}{\sum_j (E_{upper} + E_{lower})_j} E_{strip}$$
 - Coverage of strip is NOT considered



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Summary

- Temperature sensor might NOT be calibrated
- Checked pedestal stability
 - Many channel have a few peaks
- Implementation of simple SSA is finished
 - A layer of ECAL is divided into 42×42 cells
 - Center strips is divided into 10 cells
 - Area of the overlapping region at the edge of the strip is NOT considered
- Next
 - Temperature dependence of gain
 - Angle correction of MIP
 - Track fit
 - Mismatch of triggerID between ECAL and HCAL