Report on KOTO EMCal Study
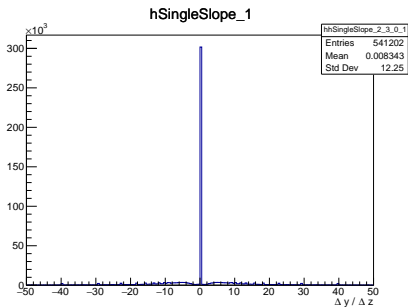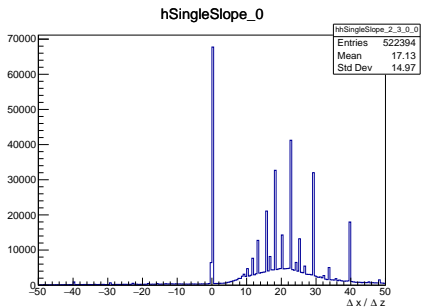
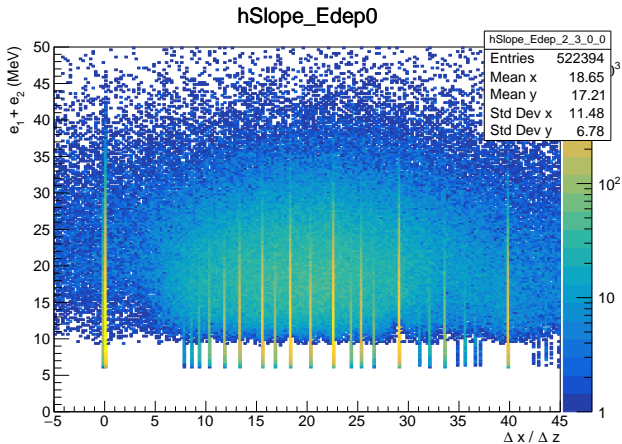Junlee Kim

October 13, 2020

Updates contents

- ▶ Reconstructed angle vs Energy
- ▶ Reconstructed angle vs Angle RMS
- ▶ Reconstructed angle vs Time
  - ▶ 1 GeV gamma with $\theta = 20$ deg ($\varphi = 0$)
  - ▶ Energy cut : 3 MeV
  - ▶ hits within150 mm from the first hit
- ▶ Neural net using TMultiLayerPerseptron.
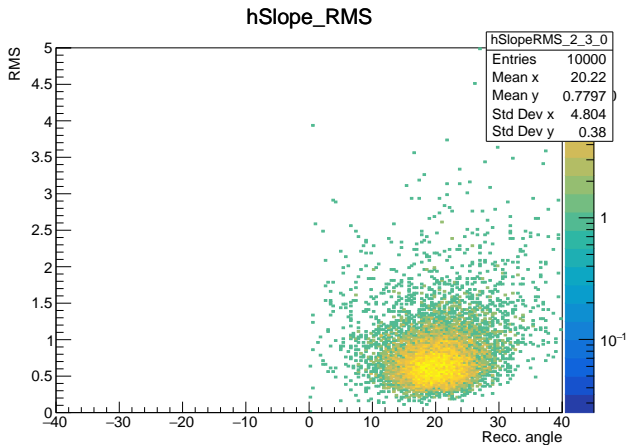 - ▶ still progressing..
  - ▶ Strategy?

Angle distribution

- ▶ Before taking average
- ▶ Many delta peaks
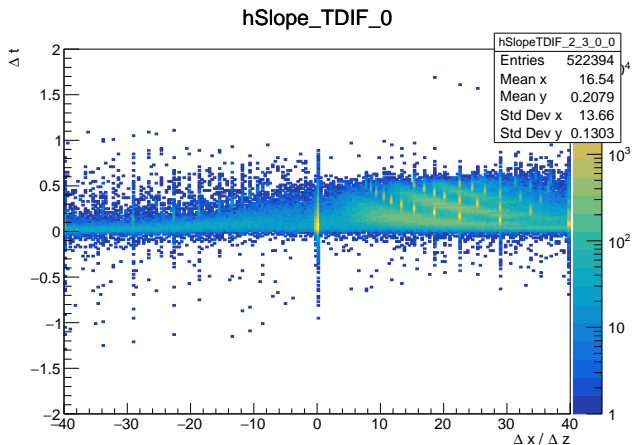
Reconstructed angle vs Energy
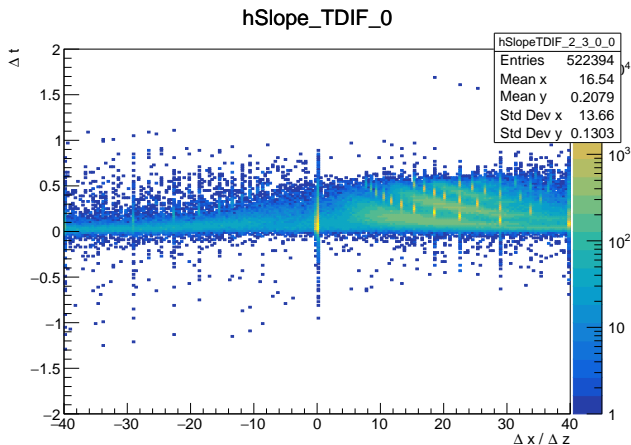
Reconstructed angle vs Angle RMS

▶ Would be not effective for quality cut

Reconstructed angle vs Time

▶ Structure?

Reconstructed angle vs Time

▶ Structure?

TMultiLayerPerseptron

- ▶ TMultiLayerPerseptron need fixed number of inputs...
  - ▶ Whole detector signals as inputs without zero suppression.
  - ▶ CPU time usage is too large.
  - ▶ No results so far.
- ▶ input a few variables instead?
- ▶ Other method to achieve?