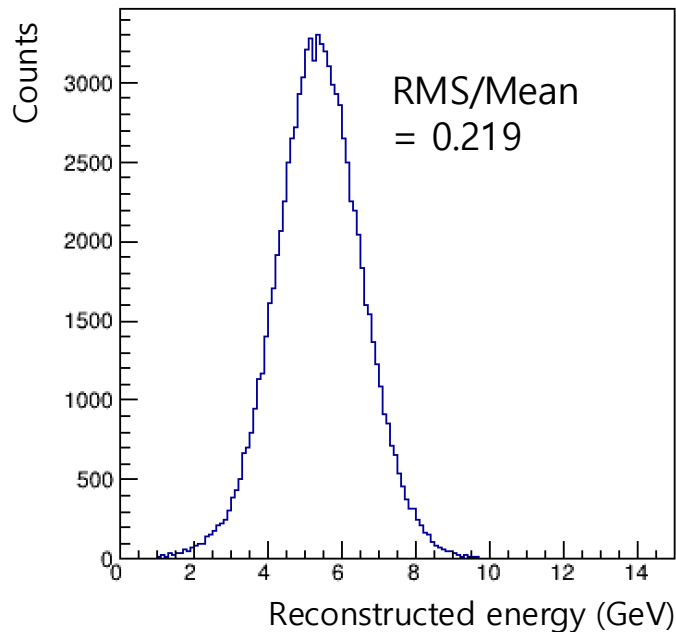# The best four layers configuration for energy splitting
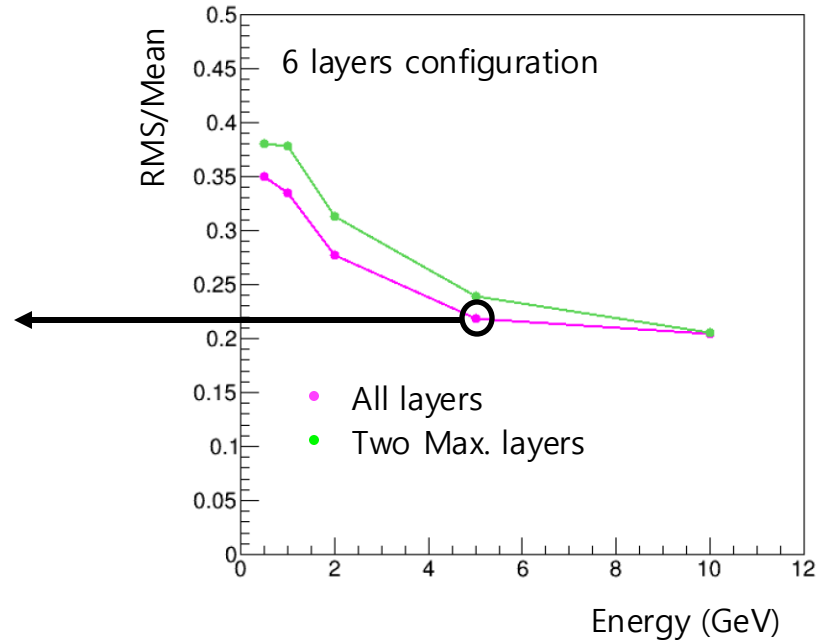
Oct 8 (Tue)
Minho Kim

5 GeV electron at $\eta = 0$

Electron at $\eta = 0$

RMS/Mean = 0.219

6 layers configuration

- All layers
- Two Max. layers
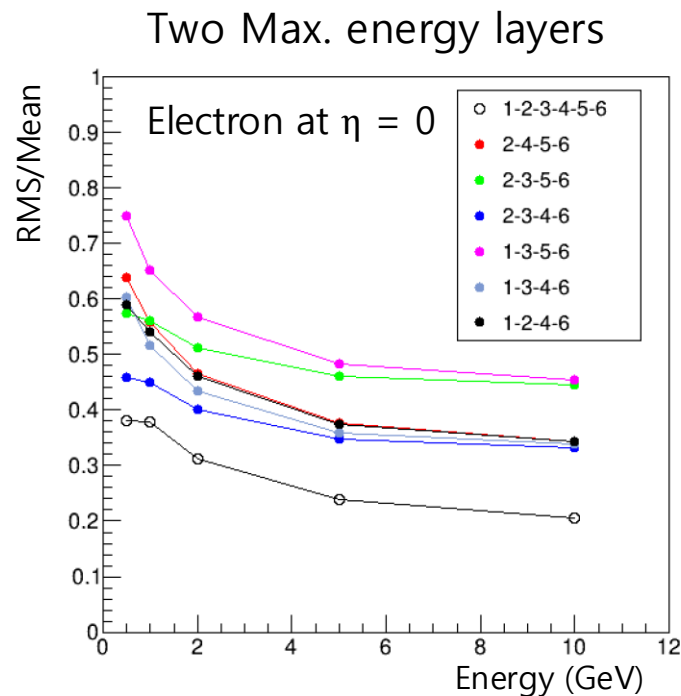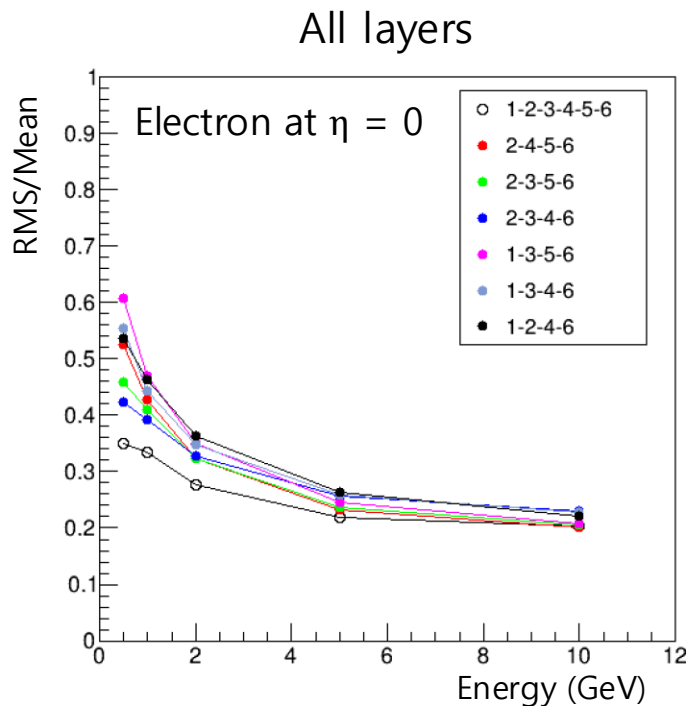
- We could use the energy deposits on the imaging layer for energy splitting when two particles hit the same ϕ region in the BIC.

- We want to find the best four layers configuration, which shows the smallest RMS/Mean value.

RMS/Mean with different layer configurations

All layers

Two Max. energy layers

- The layer configurations where two successive layers were absent, e.g., 1-4-5-6, were not studied.

- "All layers" shows much better performances than "Two Max. energy layers" when only four imaging layers are used.
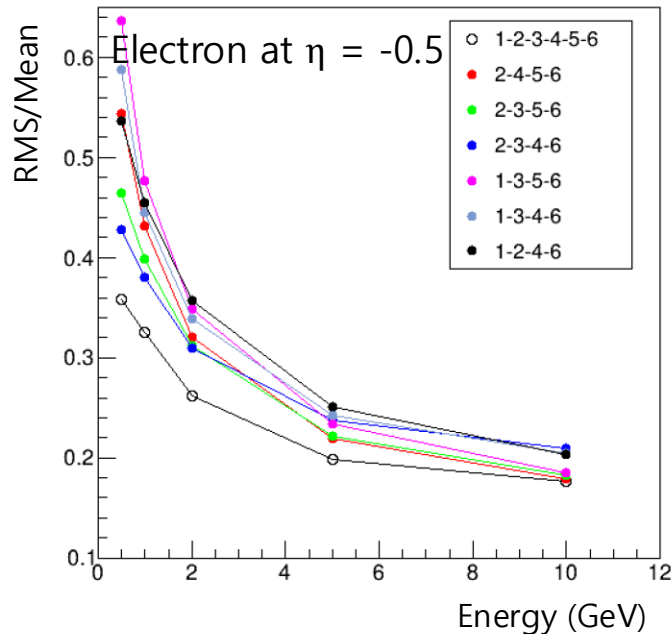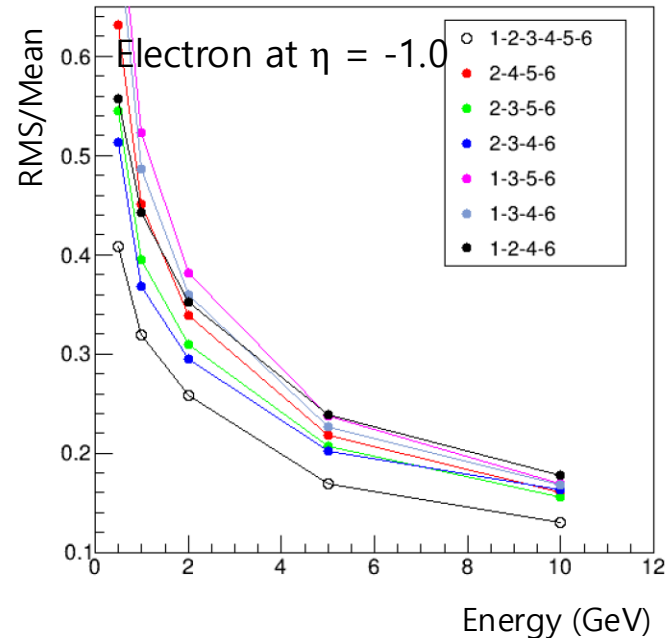
All layers (zoom-in)
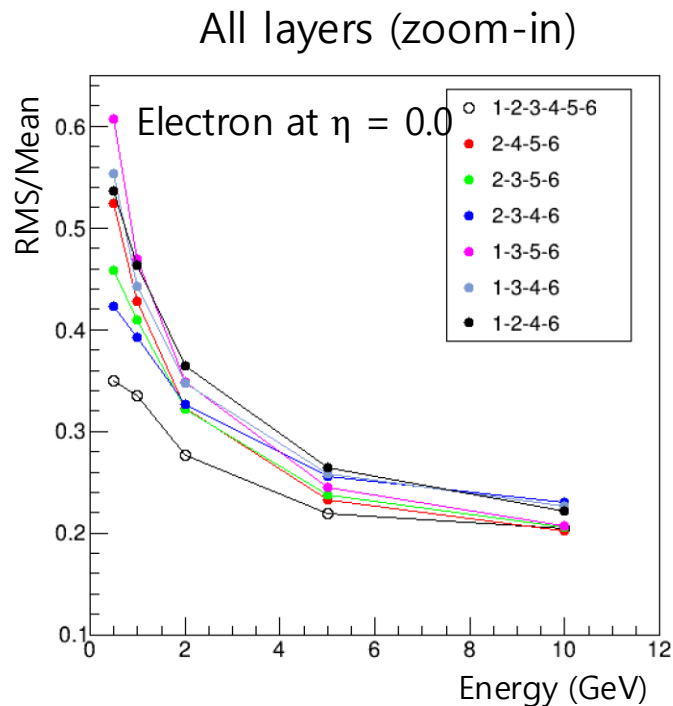
- The layer configurations starting with 2-3- (green and blue) show better performances at low energy.

- The layer configuration ending with -5-6 (red, green, and purple) show better performances at high energy.

RMS/Mean at different η

All layers

All layers

- At η = -0.5, the RMS/Mean decreases at higher energy compared to η = 0.0, but the trends in the previous page continue.

- At η = -1.0, the RMS/Mean gets worse at 0.5 GeV because of the experimental structure.

- At η = -1.0, the RMS/Mean decreases at higher energy compared to η = -0.5 and the trends in the previous page begin to disappear as the electrons experience more X_0.

- 2-3-4-6 and 2-3-5-6 would be the best configuration.

Status & plan

- Studying the energy splitting when two particles hit the neighboring tower.

- Will study what kinds of overlaps we will have from Pythia samples.