

# Report on KOTO EMCal Study

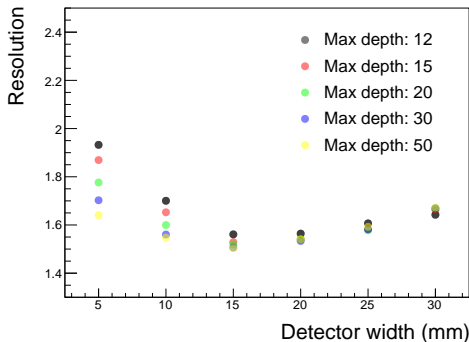
Junlee Kim

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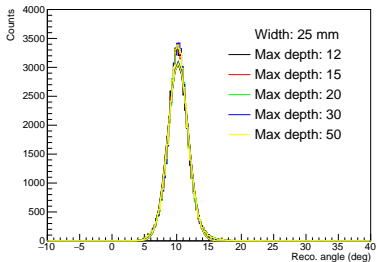
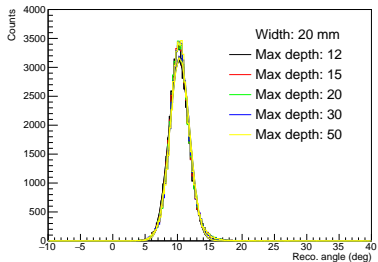
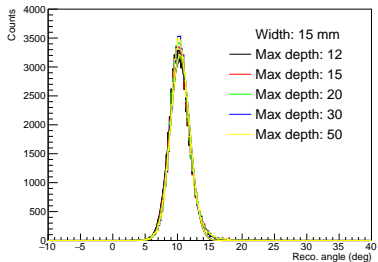
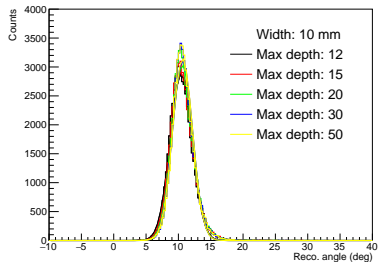
- ▶ Study for detector width effect on the reconstruction
- ▶ Font layer for tracking
- ▶ New detector setup

# Detector width study

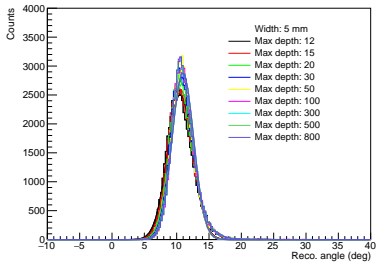
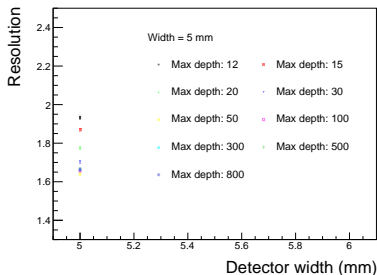


- ▶  $\sigma = 1.5$  (deg) at  $dxy = 15$  mm
- ▶ Reconstruction performance is saturated at  $dxy > 10$  mm with increasing max depth
- ▶ Optimized at  $dxy = 15$  mm

# Detector width study

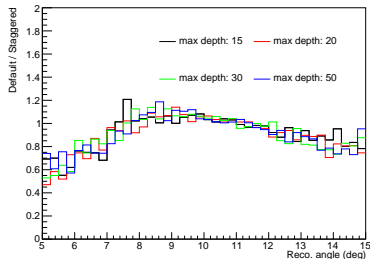
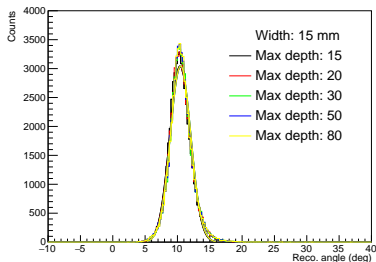


At  $d_{xy} = 5$  mm



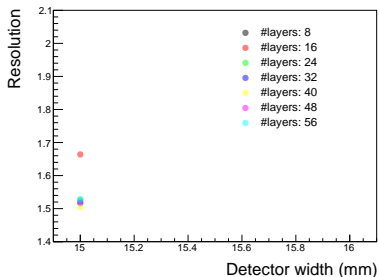
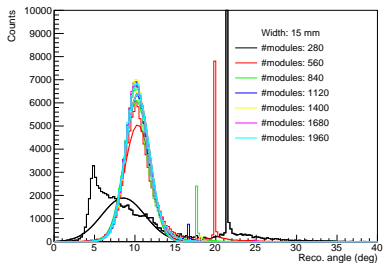
- ▶ Resolution is saturated to  $\sigma = 1.65$  with increasing max depth.
- ▶ Saturated resolution is worse than  $d_{xy} = 15$  mm.

# Staggering alignment



- ▶ Distance of origins of neighboring layers is set to half of detector width (7.5 mm)
- ▶ Worse resolution than original can be seen, under investigation.

# Front layer for tracking



► Reconstructions work with 48 layers

# Status

- ▶ Detector configuration with  $dxy = 15$  mm would be optimal setup for  $\theta$  reconstruction.
- ▶ Staggering alignment has been tested and shown worse reconstruction resolution.
  - ▶ Same resolution was expected, How can results be understood or investigated?
- ▶ Incident angle was reconstructed by using only front parts of detector and 48 layers was found to be enough.
- ▶ Origin and  $\varphi$  reconstruction test