Report on KOTO EMCal Study
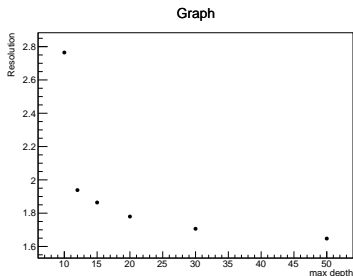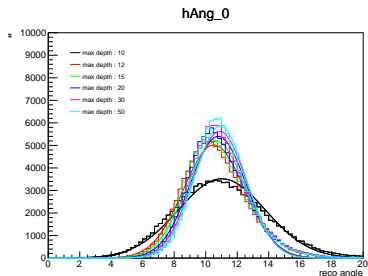
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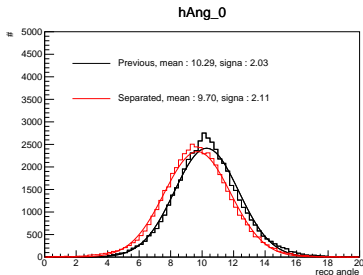# Contents

- Finer dxy test with improved training setup.
- Separate estimation for x and y toward φ estimation
- Test for saving and loading training output
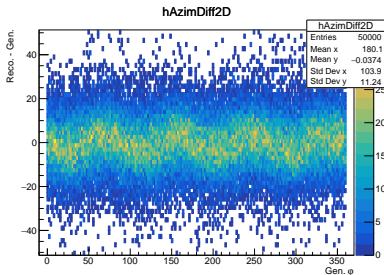- Origin reconstruction with extrapolation using COE

Finer dxy test

- ▶ Training sample: random generation for polar(0–50 deg) and azimuthal angle(0–360 deg) with 100k events
- ▶ Test samples: 50k fixed $\theta = 10^o$ events.
- ▶ Even in extreme max depth, the resolution is not dramatically enhanced.
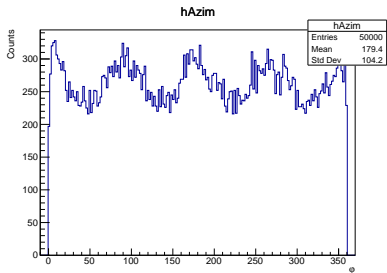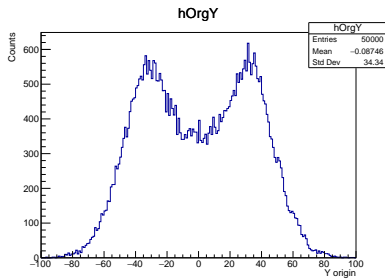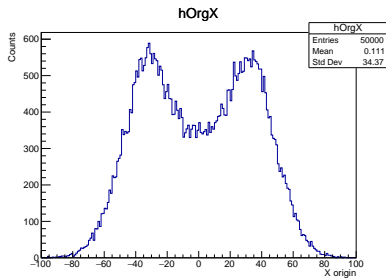
Toward φ estimation

- ▶ Training sample: random generation for polar(0–50 deg) and azimuthal angle(0–360 deg) with 100k events
- ▶ Test samples: 50k fixed $\theta = 10^o$ events.
- ▶ Resolution is similar while mean position is shifted for separated method.
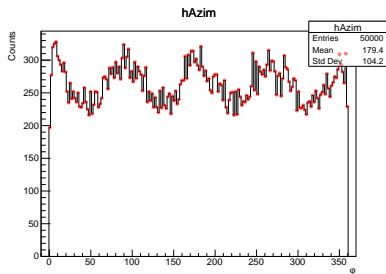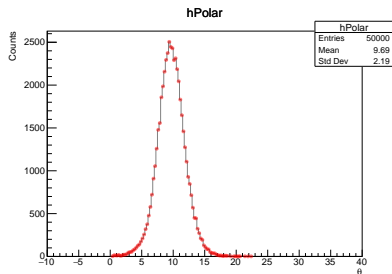
φ estimation

- ▶ Not uniform..
- ▶ Further test with a finer setup will be studied.
- ▶ Standalone estimation with DL?

Origin reconstruction

- ▶ Extrapolated by COEx and COEy
  - ▶ $x = \theta_x(z - \text{COE}z) + \text{COE}x$
- ▶ Bad performance
- ▶ DL for origin?

Test for saving and loading training output

- ▶ Line from real-time training and point from loading training output.
- ▶ Identical results can be obtained.

Status

- Origin and φ reconstruction test will be investigated