

# TPOL Fitting analysis

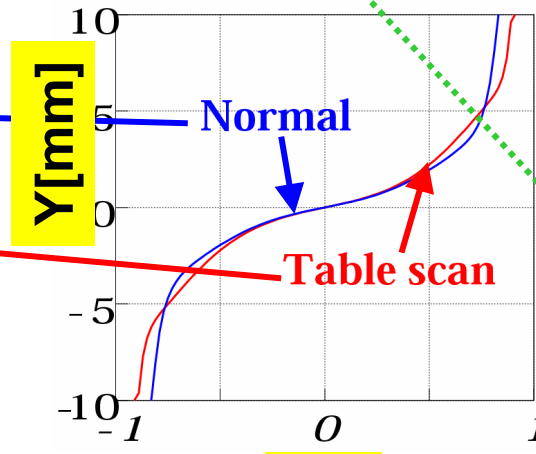
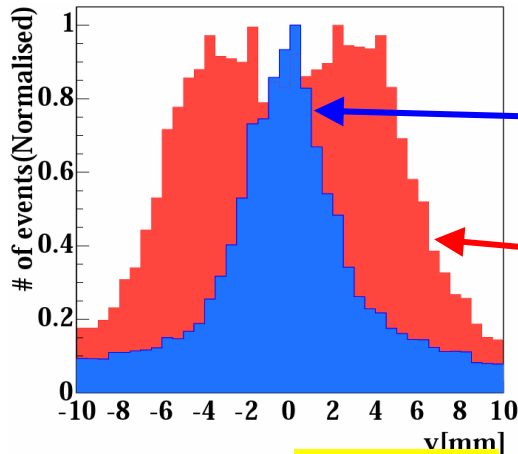
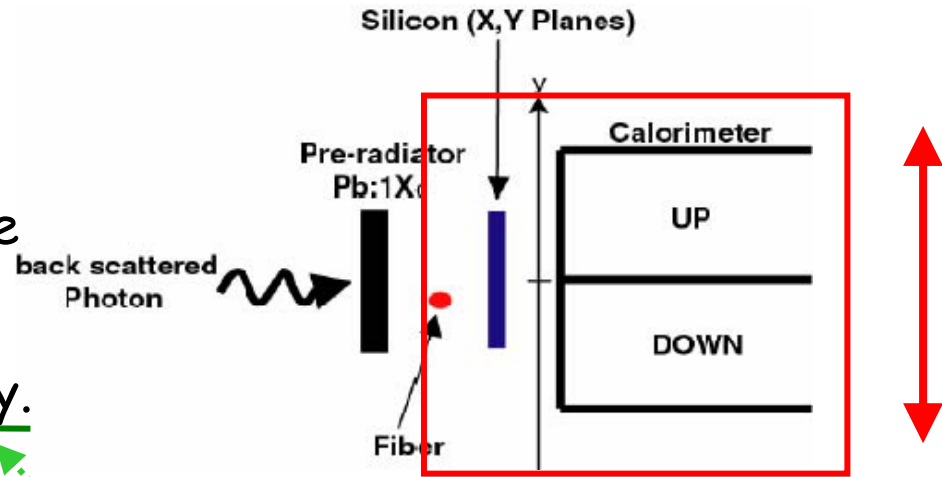
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# Systematic uncertainty

• The $\eta - \gamma$ curve	0.87%
• Fitting range	1.99%
• Calibration of CAL	1.97%
• Beam offset	0.02%
• Distance IP to CAL	0.78%
• Energy resolution	1.16%
Total	3.25%

# The $\eta$ - $y$ curve

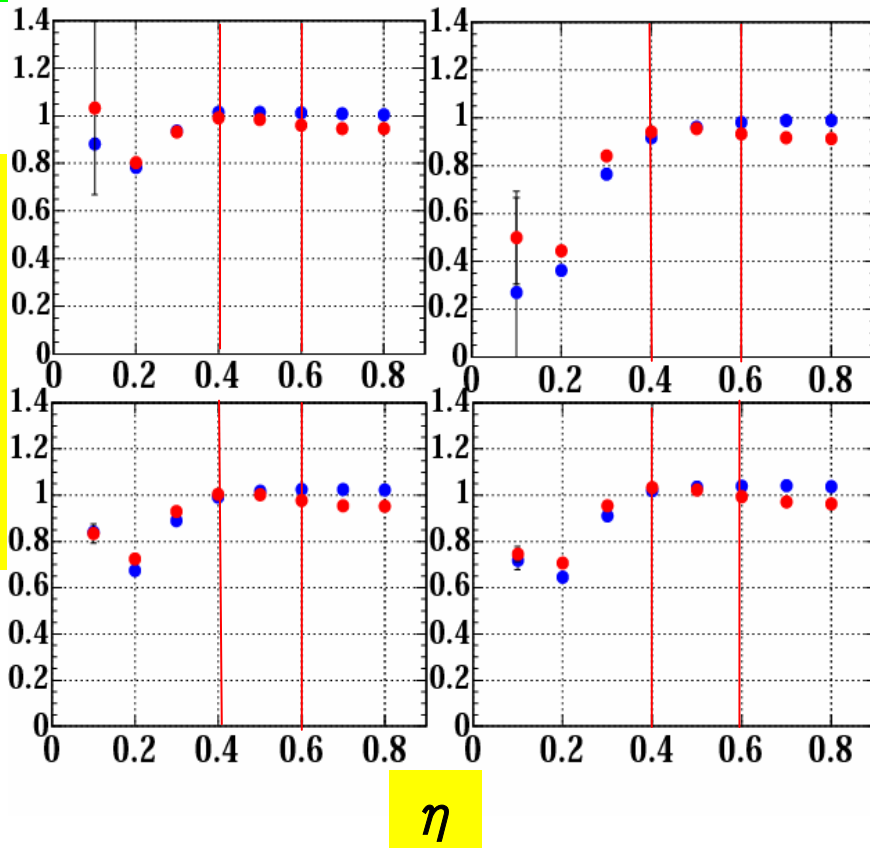
1. "Normal" (=usual data taking mode)
2. "Table scan"
  - To increase statistics at large  $\eta(y)$
  - To reduce backgrounds which may cause bias in deriving  $\eta$ -  $y$ .



Whole( CAL, Si, Fiber) scan in vertical(y)

- Back scatter from CAL
- Entering with angle due to pre-radiator

# Fitting range



- To avoid systematic uncertainty due to the difference of two curves,  $\eta$  range set to  $\eta < |0.5|$ .
- At  $\eta = 0.5$ , systematic uncertainty from the  $\eta - \gamma$  curve is **0.87%**

- Systematic uncertainty from fitting range is **1.99%**.

# Calibration of CAL

$$U_{\text{abs}} = (Fe \times (1 + Feta)) \times U_{\text{calo}}$$

$$D_{\text{abs}} = (Fe \times (1 - Feta)) \times D_{\text{calo}}$$

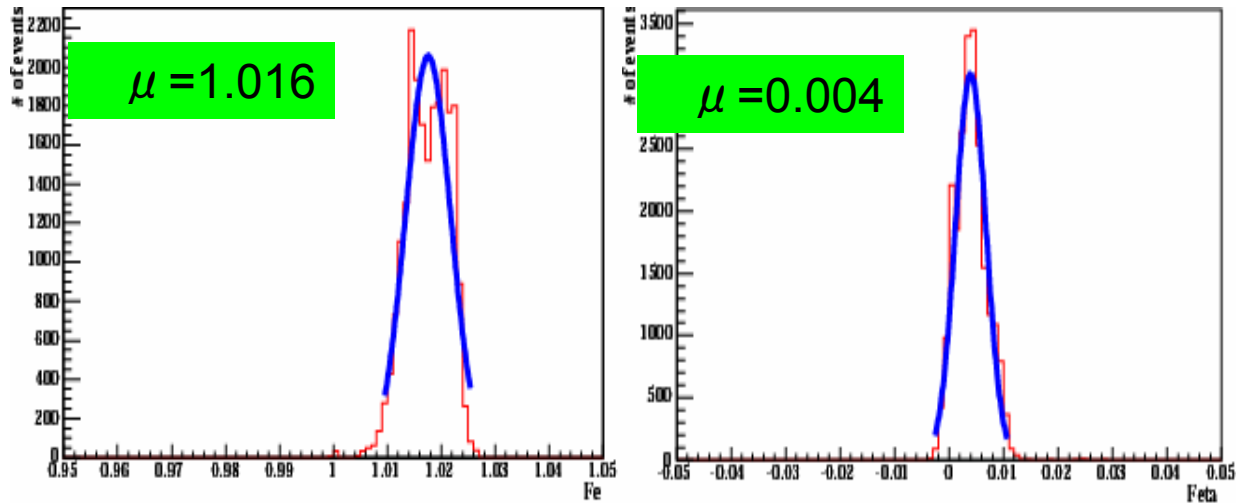
- In the fitting method, two parameters, Fe and Feta are included to consider miscalibration of online analysis.
- These parameters reflect the imperfect calibration up and down of CAL.
- At present, we do not know which value should be used in estimating systematic uncertainty.
- $Fe=1.0, Feta=0.0 \rightarrow$  Online calibration is perfect.
- Systematic uncertainty from the effect is **1.97%**.

# Proposal

- Why two  $\eta - \gamma$  curves are different from each other?
  - MC is essential.
- Reasonable fitting range should be found.
  - High  $\eta$  range?
- Final parameter set could be change, then systematic uncertainty from miscalibration effect could be small.

# Back up slides

# Calibration effects (Fe, Feta)



LPOL/TPOL

