dN/deta analysis

Mar. 5. 2024 Misaki Hata

Contents

Run20869 is used in this analysis.

- Data selection for dN/deta
  - Zvtx cut
  - Beam Clock cut
  - Channel cut
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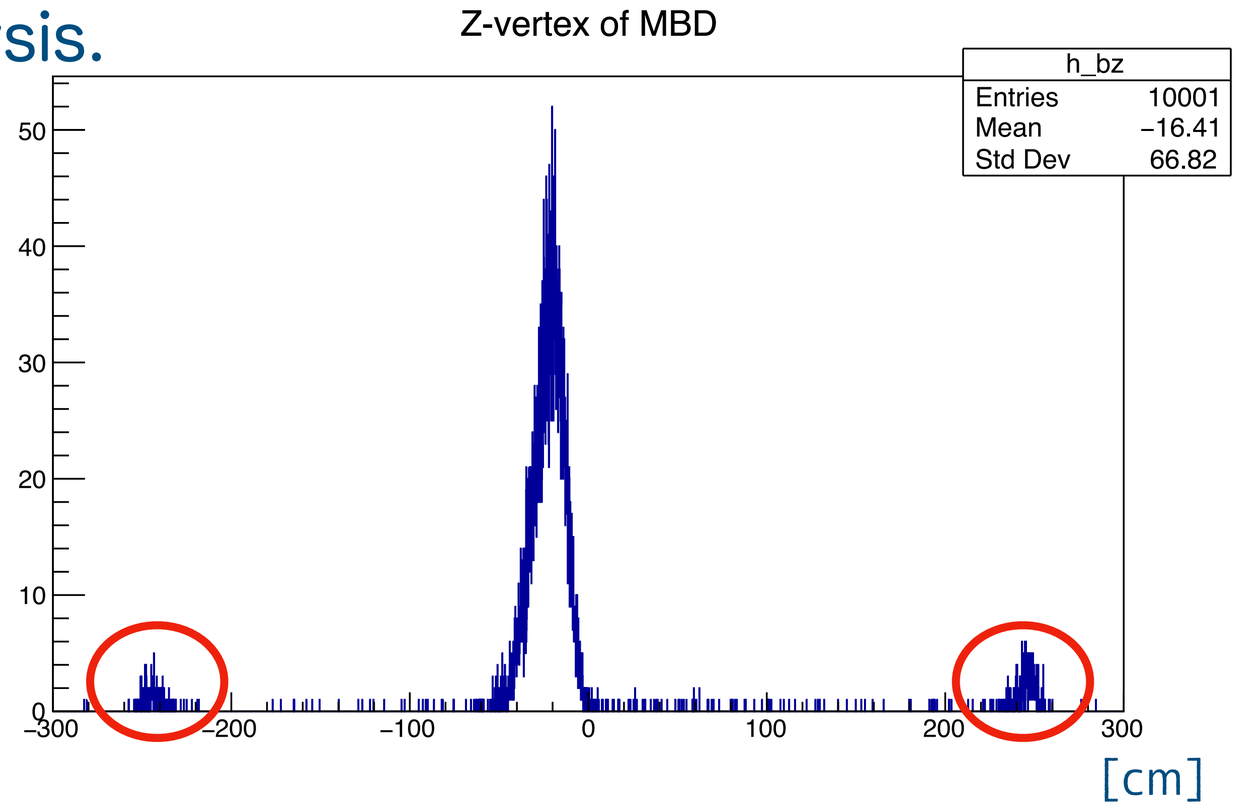
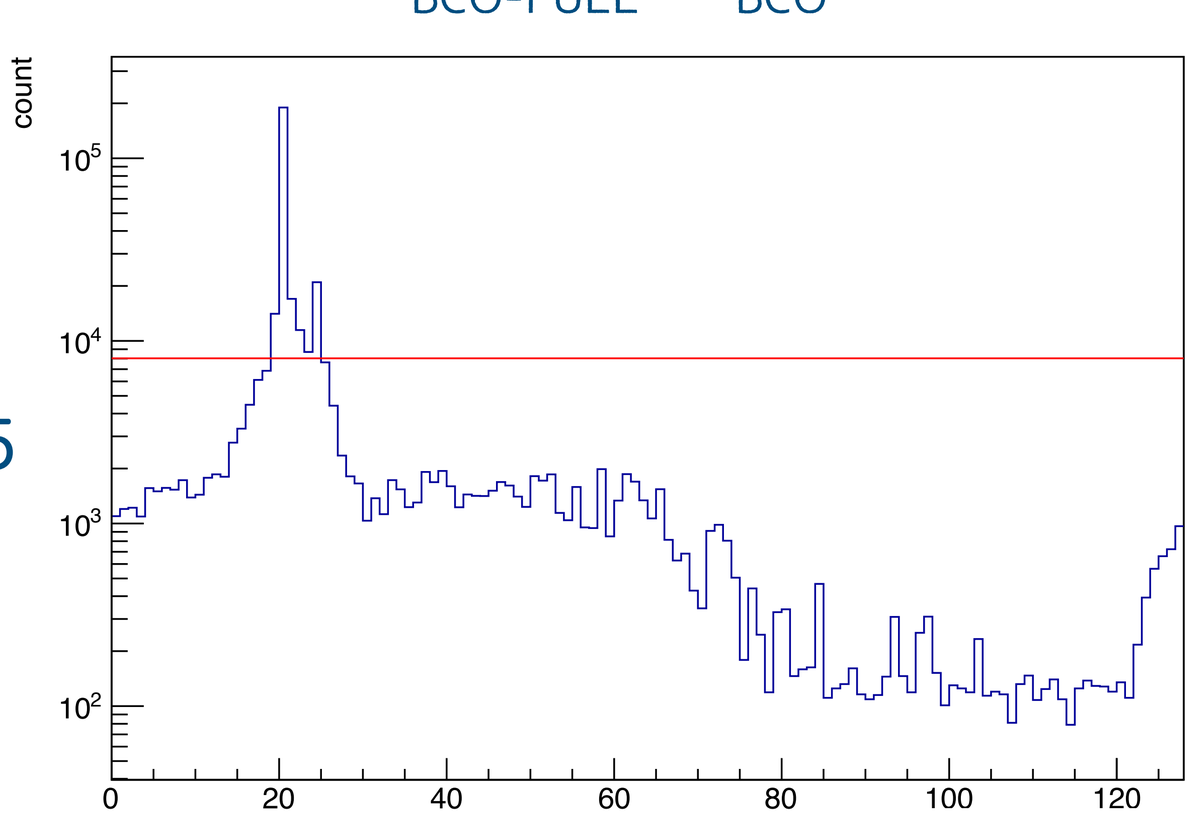
Data selection - Zvtx cut

- Fig : Zvtx distribution by MBD
- There are 2peaks that's position is same with MBD ->It need to be cut.
- |Zvtx|>20cm is cut in dN/deta analysis.



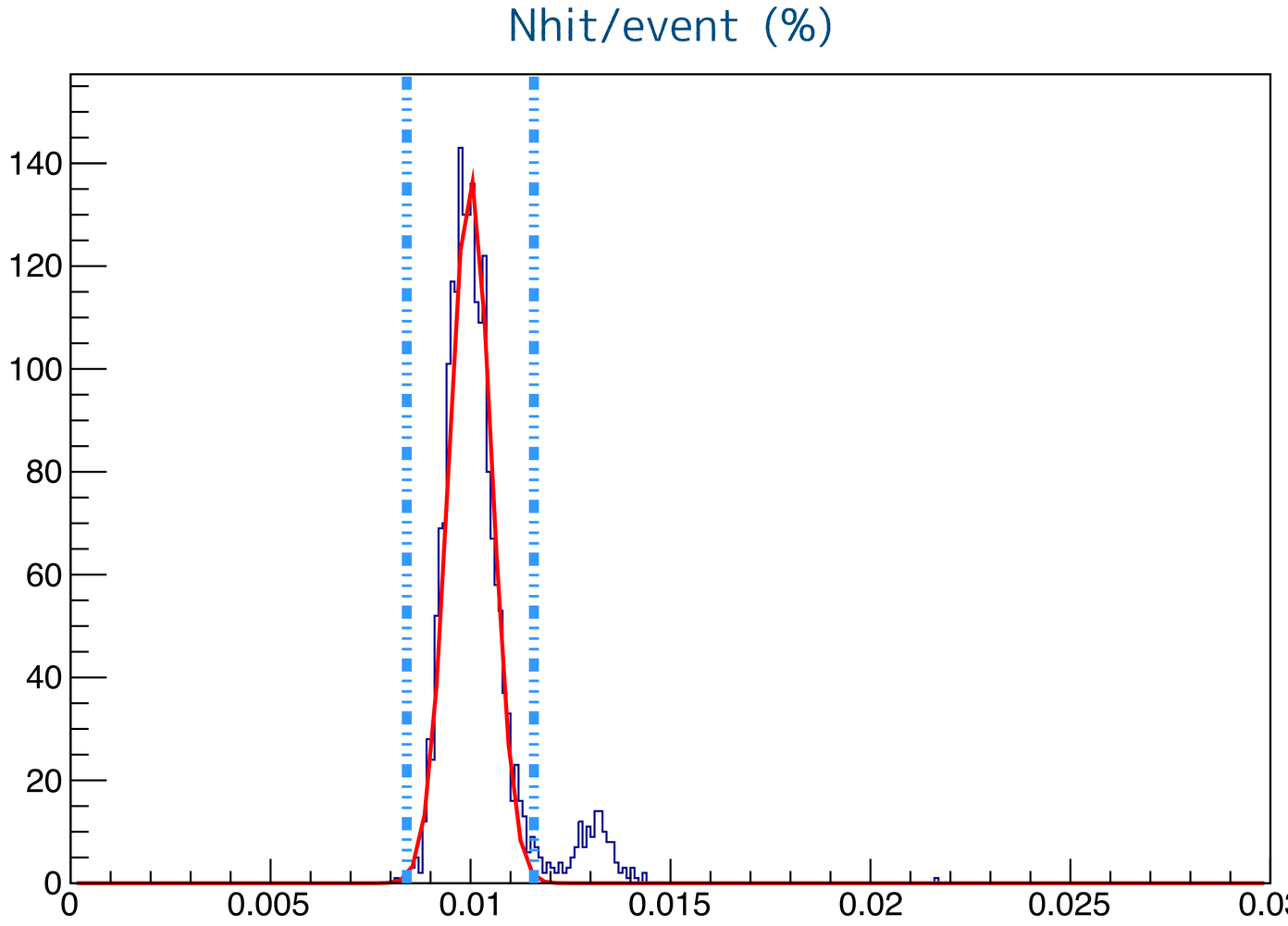
Data selection - Beam Clock cut

- Fig: Distribution of BCOFULL - BCO
- Red Line: value of background ×5
- Hit data that is more than background×5 is used in the analysis.



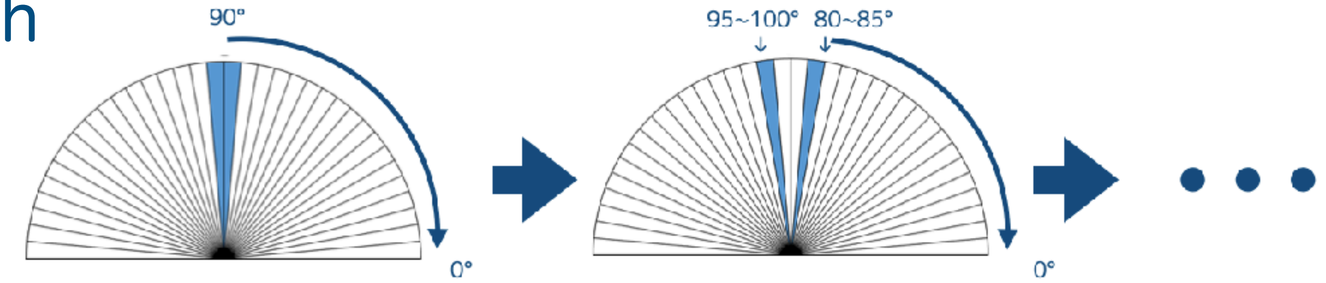
Data selection - Channel selection

- Fig: Number of hit distribution
- Line: mean±3σ
- In the analysis, hit data that is from mean-3σ to mean+3σ.



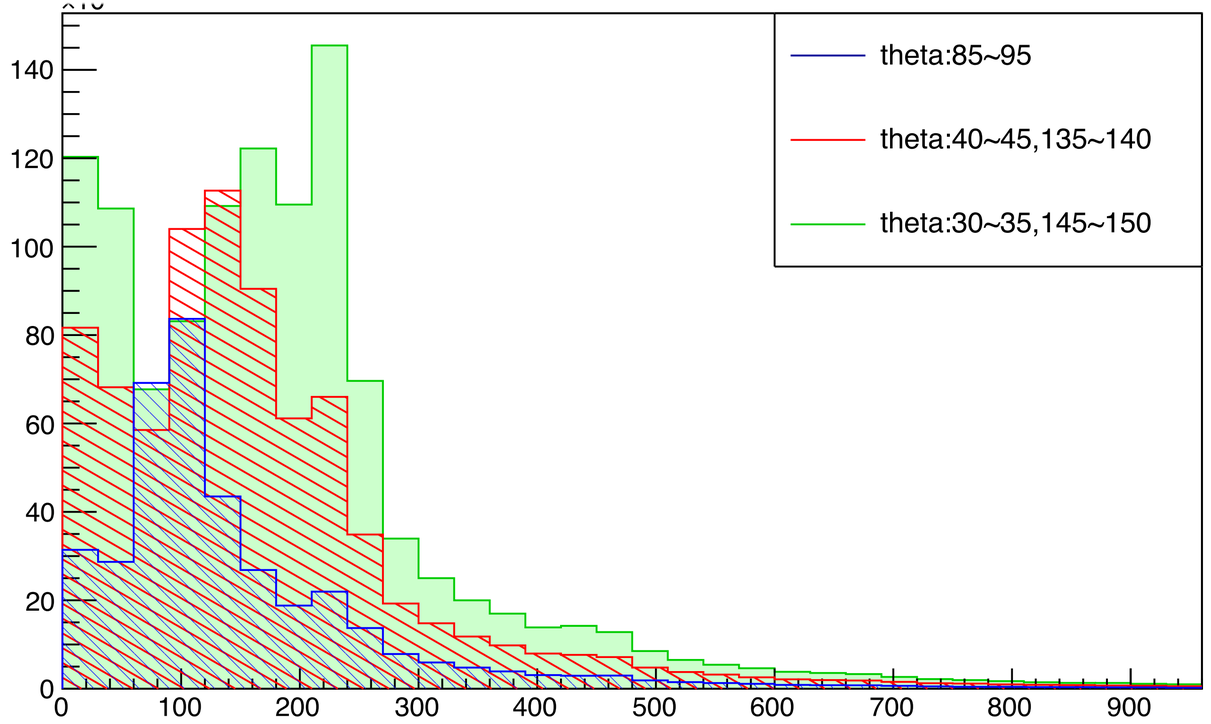
Data selection - ADC cut

- I checked ADC distribution of each theta. Theta is changed like right figure.



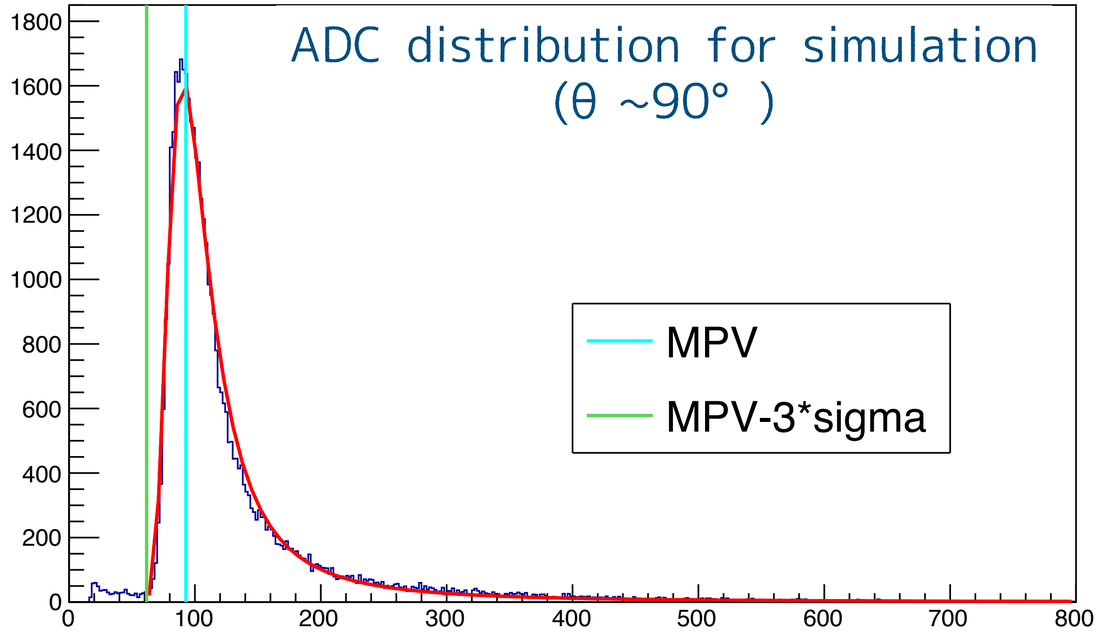
- The peak moves to larger value if theta is changed from vertical to horizontal. -> That is MIP peak

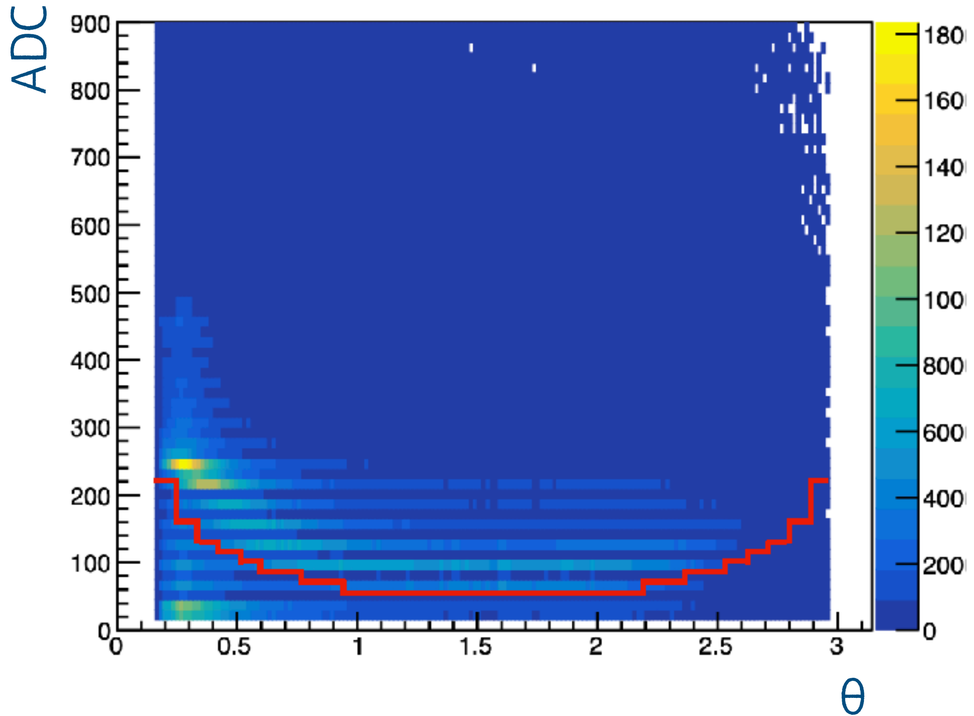
- It is thought that other peak near 0~60 is noise.
    - -> It need be cut



Data selection - ADC cut

- Threshold of ADC cut was decided used simulation data and it is mean-3sigma. The sim data is used PYTHIA. (upper figure)

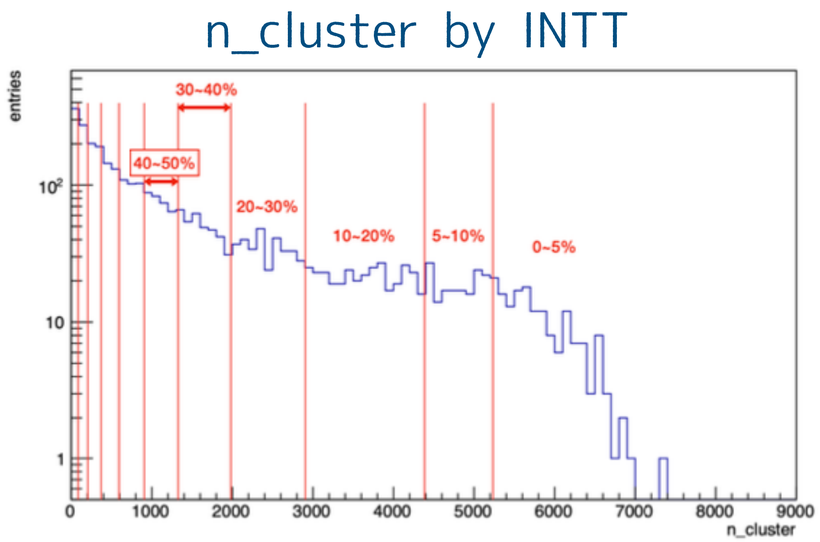


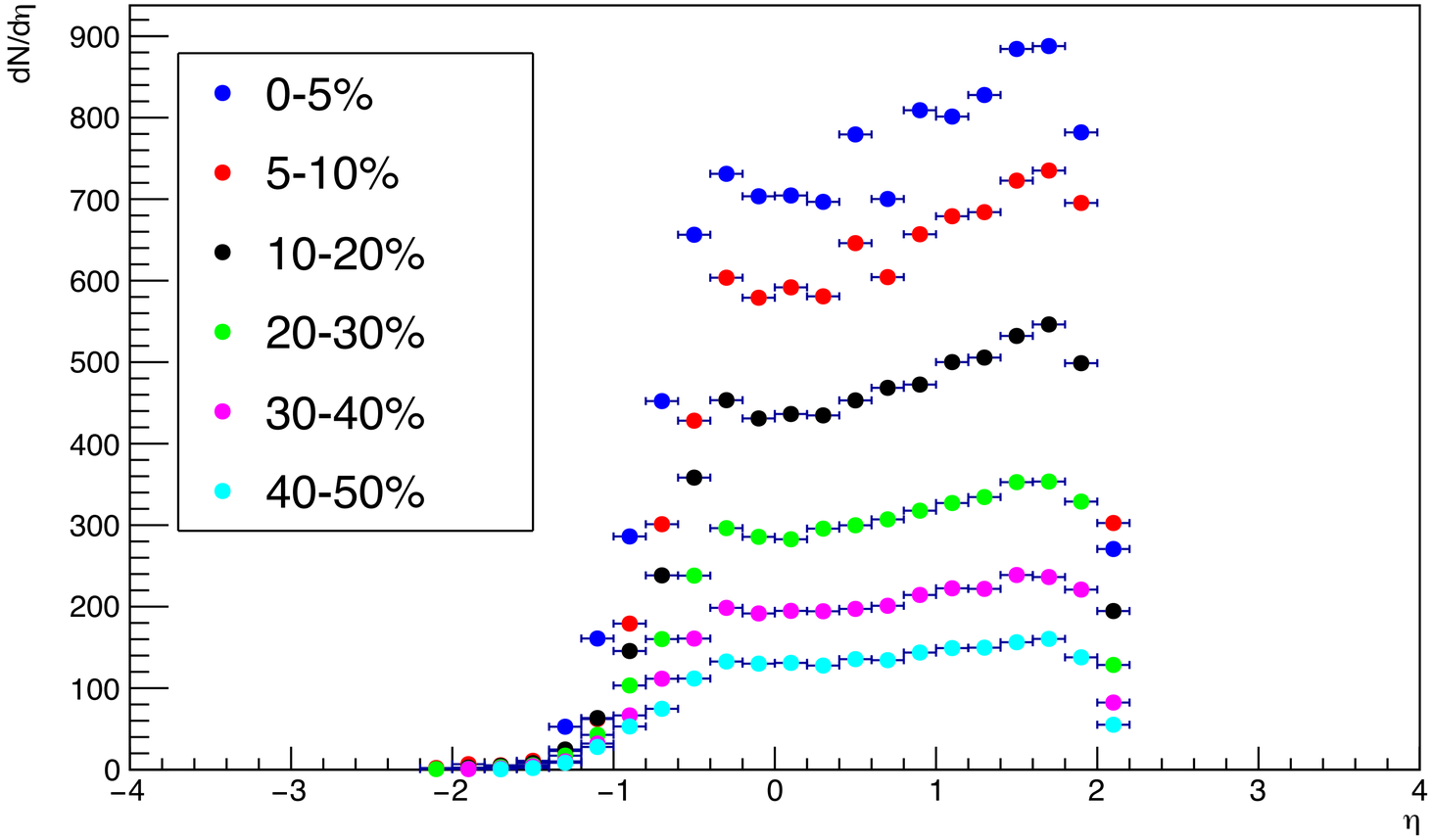


threshold of ADC cut

$\theta(^\circ)$	
$55 \sim 125$	60
$45 \sim 55, 125 \sim 135$	75
$35 \sim 45, 135 \sim 145$	90
$30 \sim 35, 145 \sim 150$	105
$25 \sim 30, 150 \sim 155$	120
$20 \sim 25, 155 \sim 160$	135
$15 \sim 20, 160 \sim 165$	165
$0 \sim 15, 165 \sim 180$	225

Result





- Centrality is predicted by number of cluster for INTT.
- Used 4 cut
  - Zvtx
  - channel
  - BCO
  - ADC (each θ)
- ※It result doesn't enter acceptance correction.

Summery

- I'm analyzing dN/deta using zero field run data measured by INTT.
- This analysis used 4cut for Data selection.
- Centrality predicted by number of cluster for INTT.
- The result of dN/deta each centrality became like layer. (It result doesn't enter acceptance correction.)