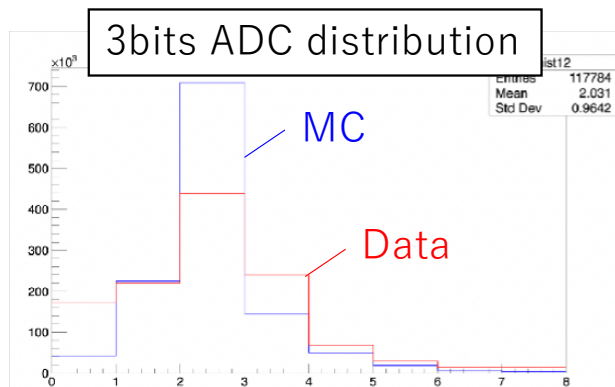
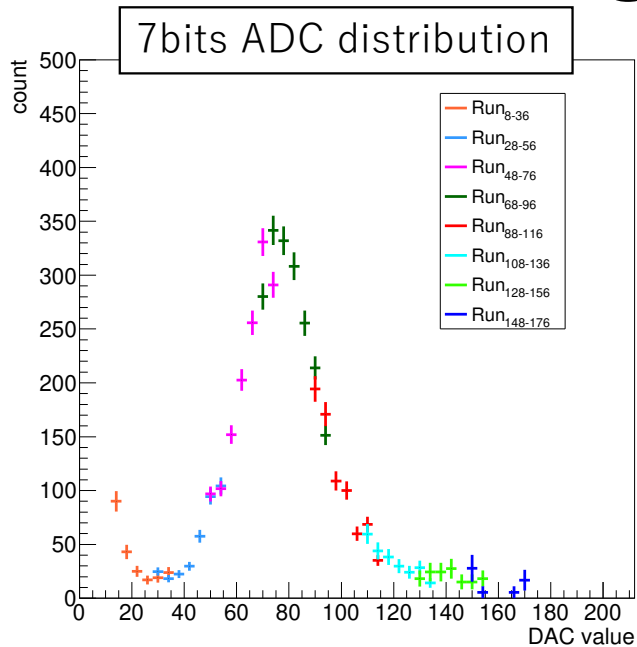


# ADC Distribution

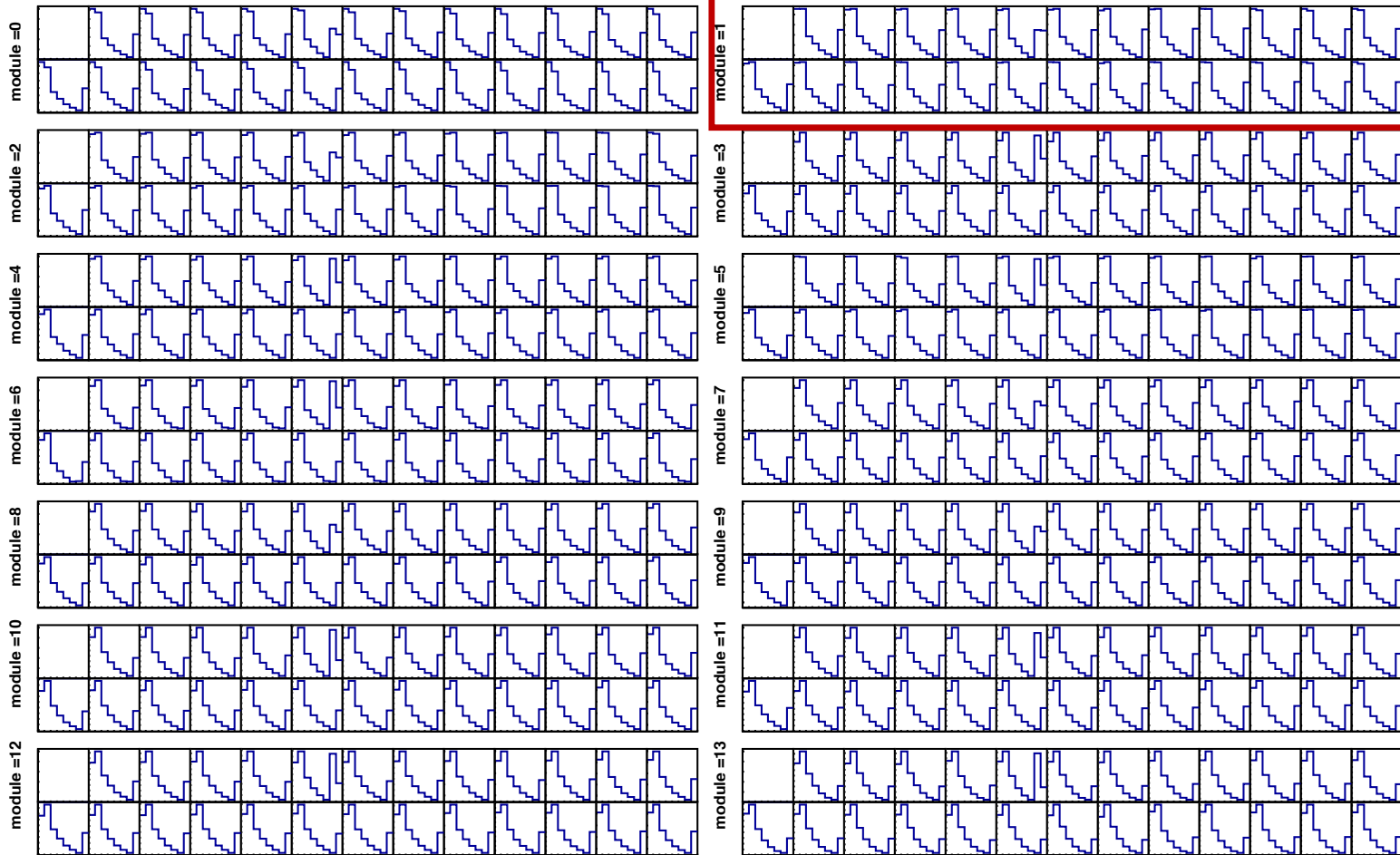
# Understanding ADC Distribution (1)



- Right figure is the observed ADC distribution in the beam test in 2021 using 1GeV electron beam.
- FPHX Readout Chip has only 3 bits, although the dynamic range of 8 DAC is from 0 to 255.
- 7 bits ADC distribution can be observed by scanning the dynamic range by shifting DAC range with multiple runs
- Distinctive MIP peak was observed in the beam test.

# ADC Distributions of Run#9231

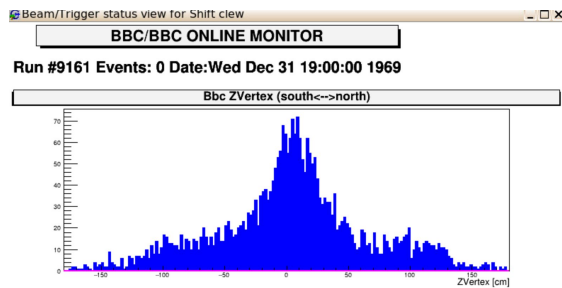
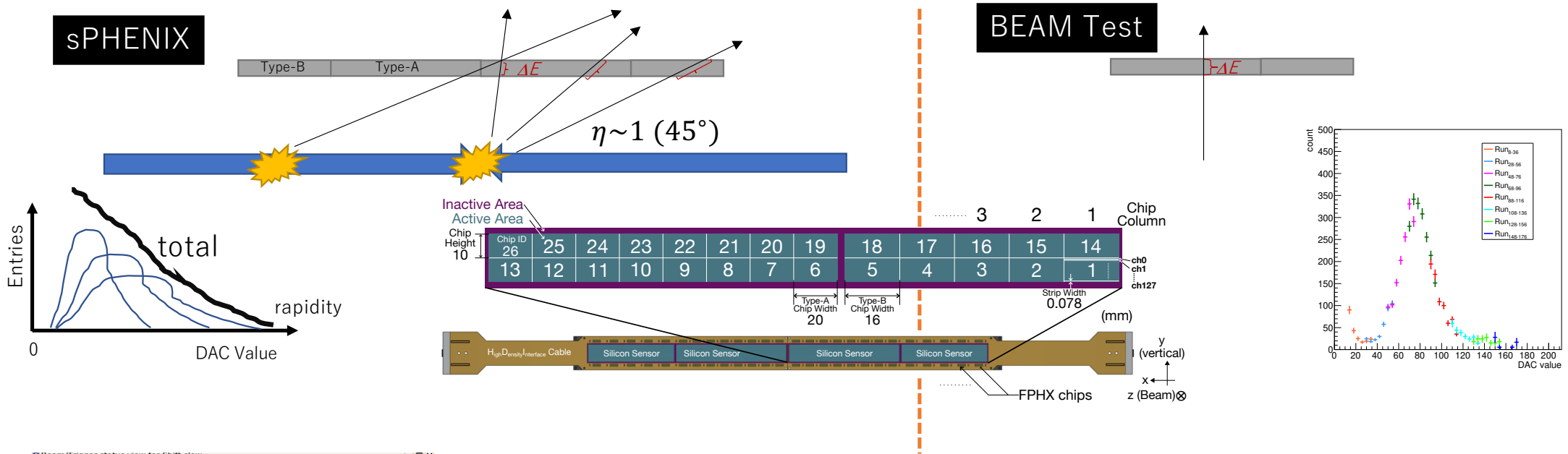
DAC0 Threshold=15



26 FHPX chip/Half ladder

- Timed-in data.
- ADC distributions for 14 half ladders in intt-7 felix server
- No distinctive MIP peak hasn't been observed.

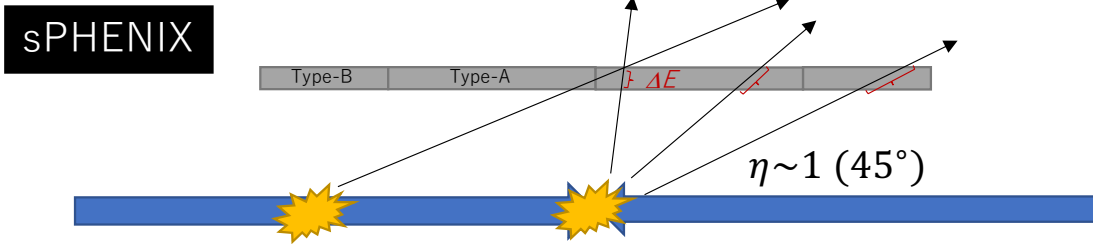
# How Energy Deposit Looks like in sPHENIX?



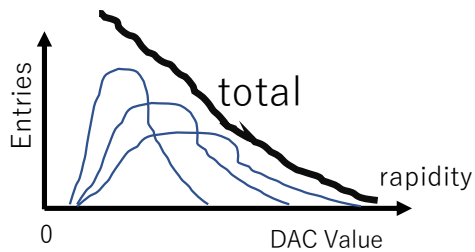
Uncalibrated z-vtx

- Due to the variation of wide angular range compared to the beam test, the MIP peak may not be as distinctive as we observed in the beam test.
- z<sub>vertex</sub> dependence will be studied.

# Monte Carlo Simulation for ADC Distribution



- Uncalibrated z-vtx
- The real distribution should be better than the plot
- Stochastic cooling is underway



- Upgrade MC Simulation code for the beam test
- Introduce model beam profile as MBD online monitor
- See if the observed ADC distribution is reproduced

