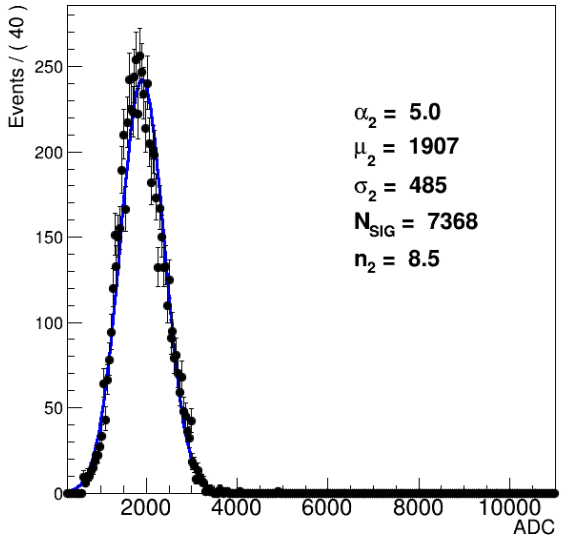
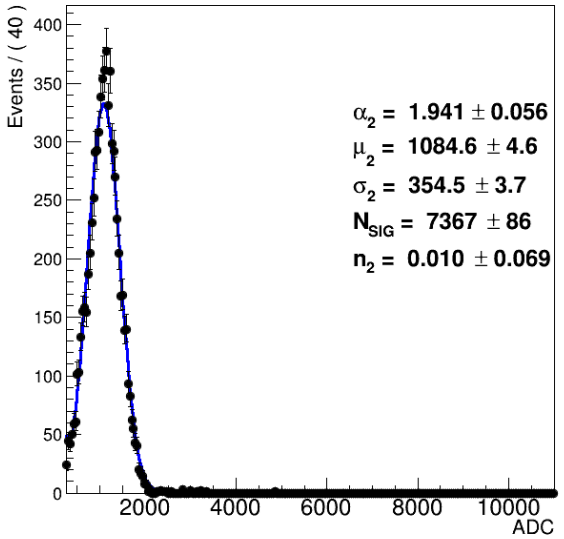
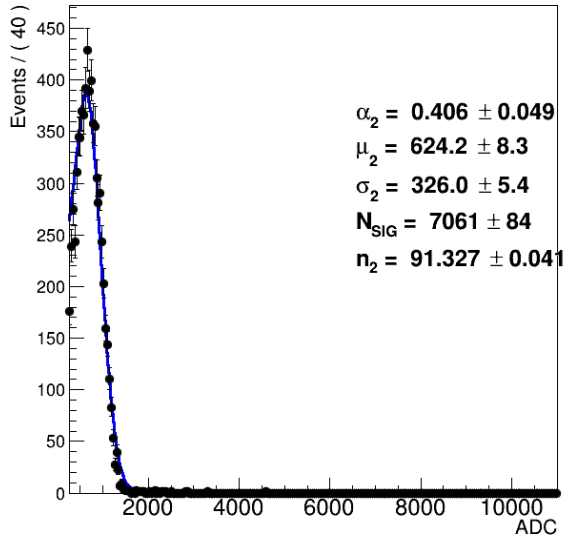
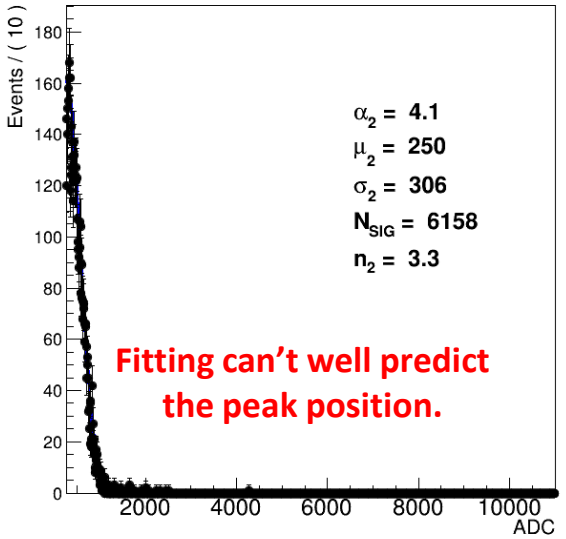
ZDC Test Beam Meeting 2024/08/06

Find Peak of Energy Distribution



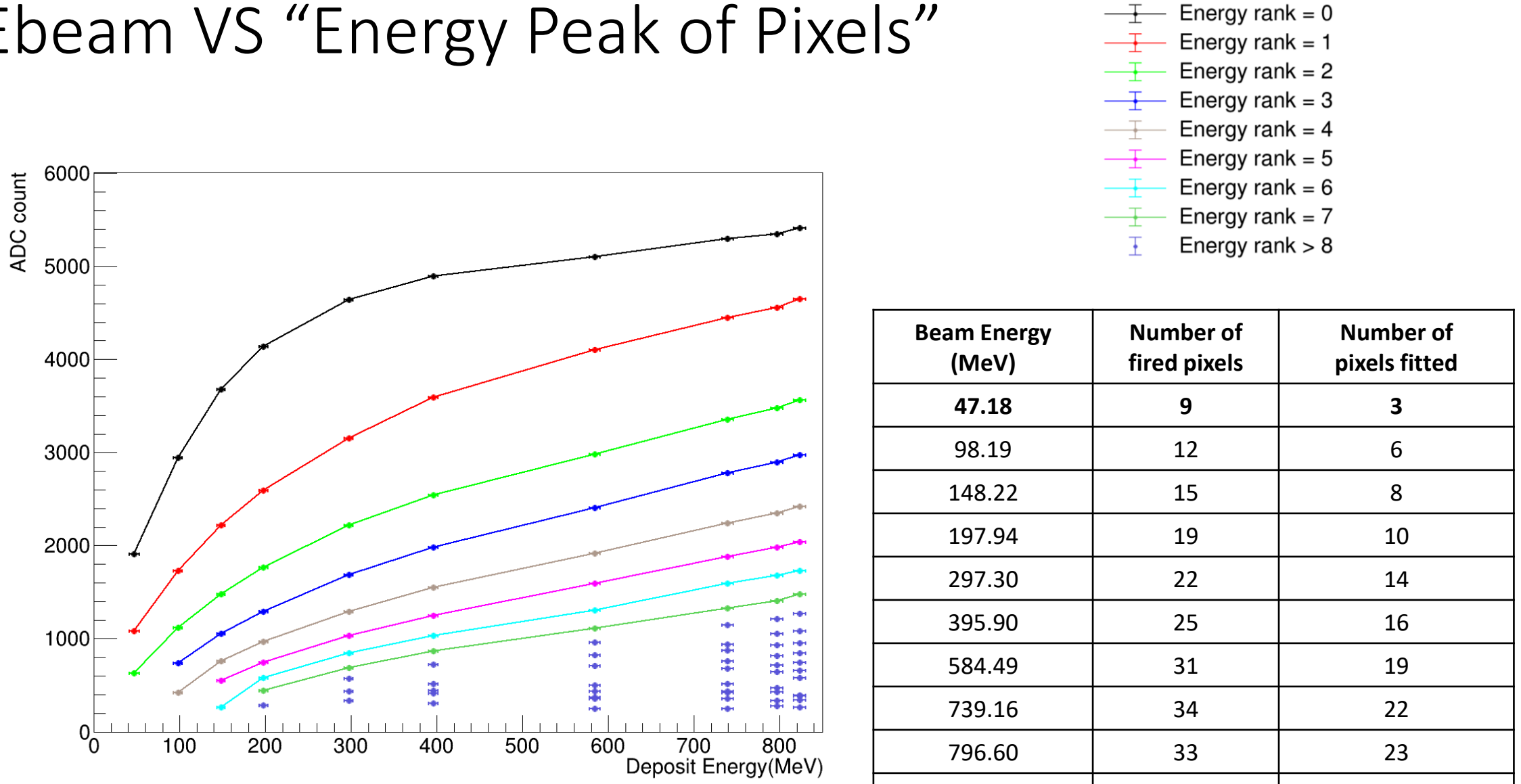






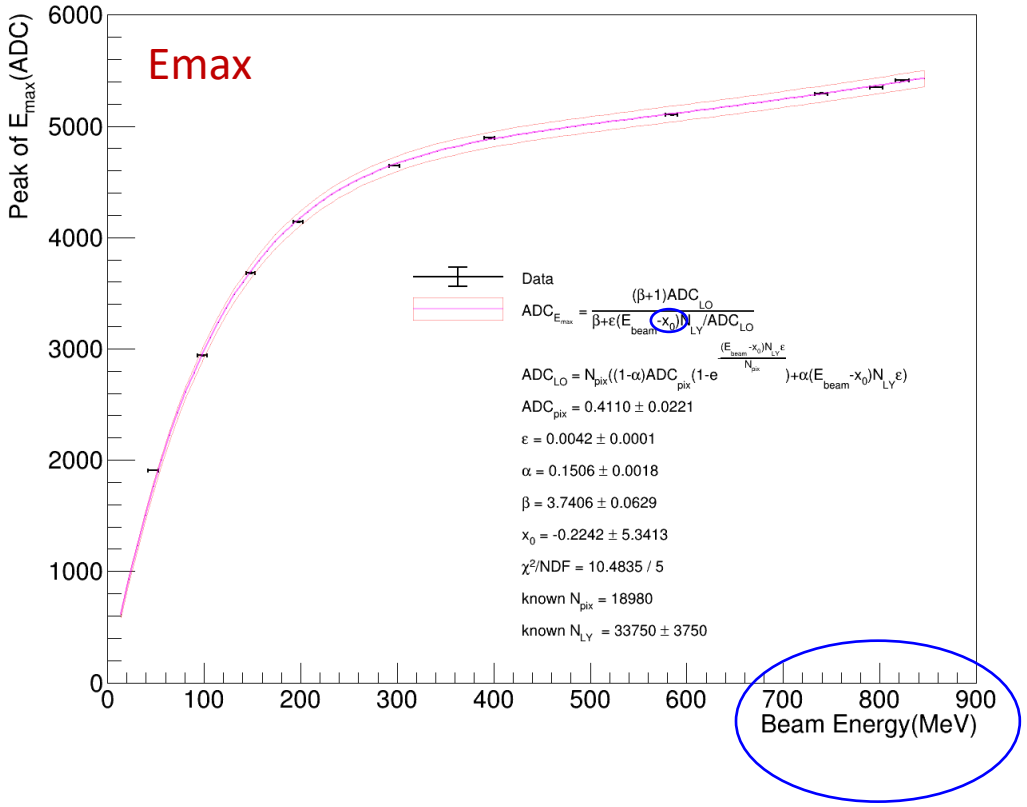
- Fitting function is crystal ball.
- For 47MeV beam, the peak fitting of Emax to E_{3th} is fine.
- However, E4th ~ E8th is not reliable since the energy is too low.

Ebeam VS “Energy Peak of Pixels”



Beam Energy (MeV)	Number of fired pixels	Number of pixels fitted
47.18	**9**	**3**
98.19	12	6
148.22	15	8
197.94	19	10
297.30	22	14
395.90	25	16
584.49	31	19
739.16	34	22
796.60	33	23
823.26	33	23

SiPM Behavior Fitting



- Add intercept X0 in fitting function to have better chi2.

- Next step MC tunning
- Before, we scaled Ebeam with “c”, c = Emax/Ebeam from MC (data fitting with input from MC).
- Instead, we will find c’ to tune MC to fit the data curve (MC tunning with data input).