

FDD prototype test

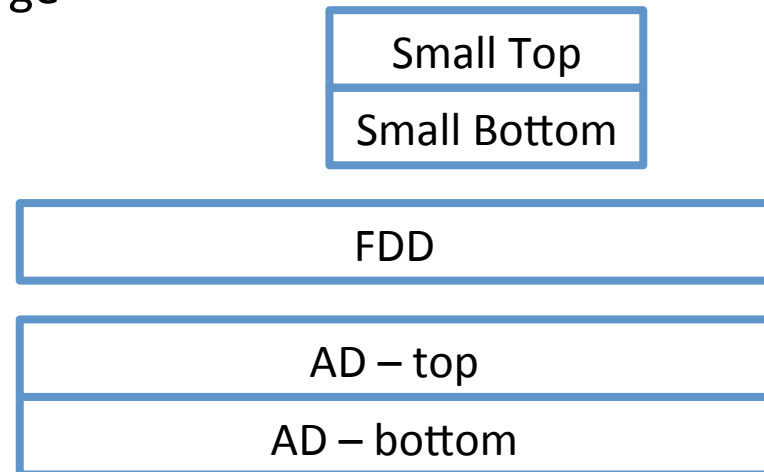
ADA/ADC meeting

12/19/18

C. Mayer

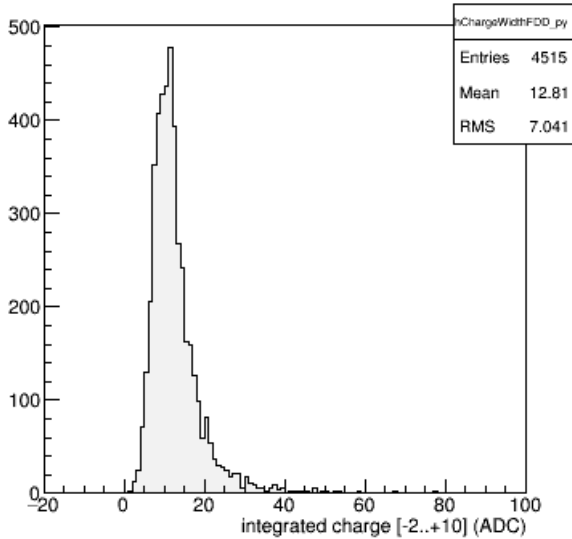
Setup

- Data taking using CCIU/CIU + PASA
- pos. HV for AD+small counters
- neg. HV for FDD
- Trigger: $\text{OR}(\text{AD}_{\text{top}} \&\& \text{AD}_{\text{bottom}} \mid \text{Small}_{\text{Top}} \&\& \text{Small}_{\text{bottom}})$
- Problems:
 - AD_{top} : time meas. ok but very low charge
 - $\text{Small}_{\text{Top}}$: strange widths distribution
 - Small counters have a very high gain
→ a cut on their charge is used to reject noise hits
- HV scan for the FDD module:
-1900V,-2000V,-2100V,-2200V

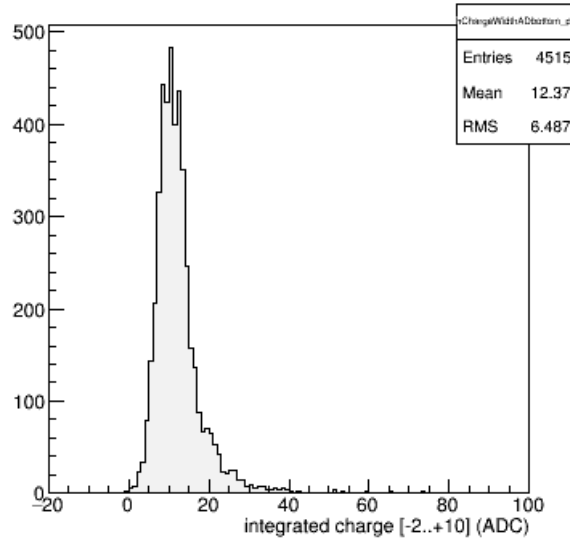


Charge distributions (run 8809)

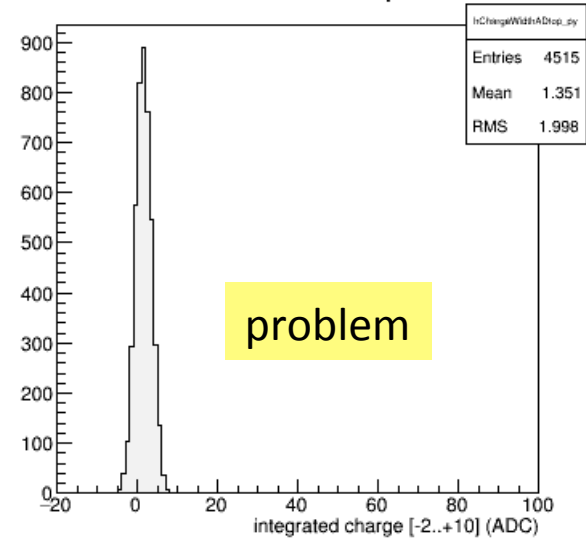
run 8809 FDD



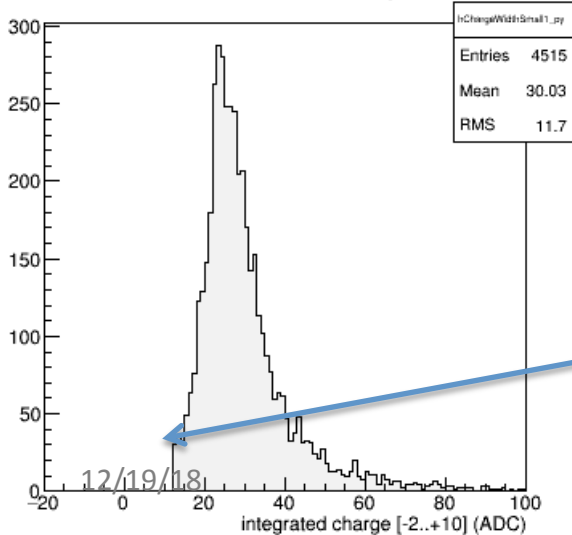
run 8809 AD bottom



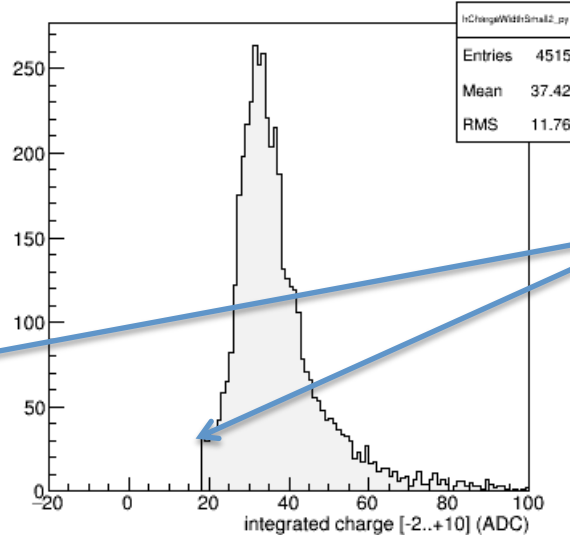
run 8809 AD top



run 8809 small top



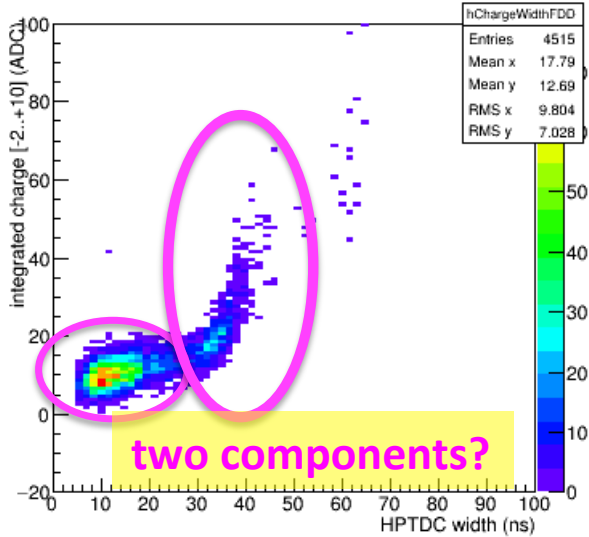
run 8809 small bottom



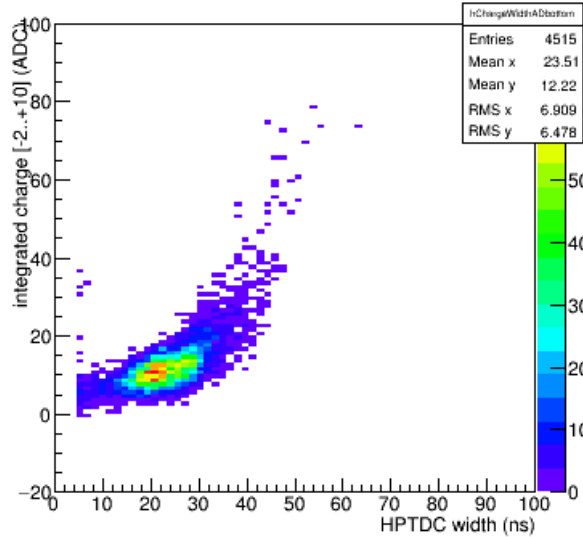
cut on the charges
of the small counters

Charge vs. width (8809)

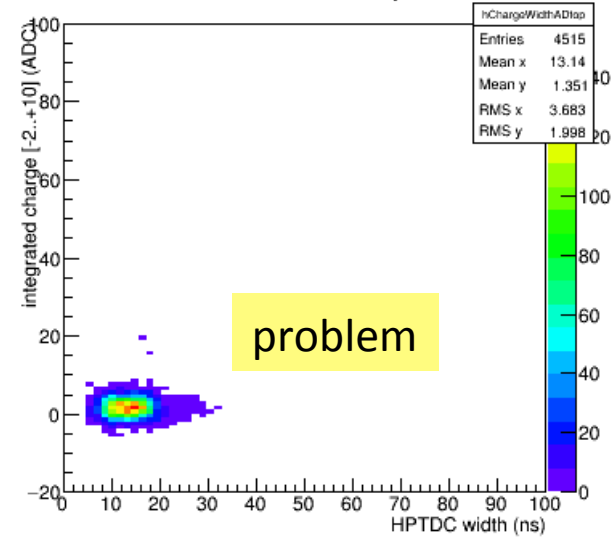
run 8809 FDD



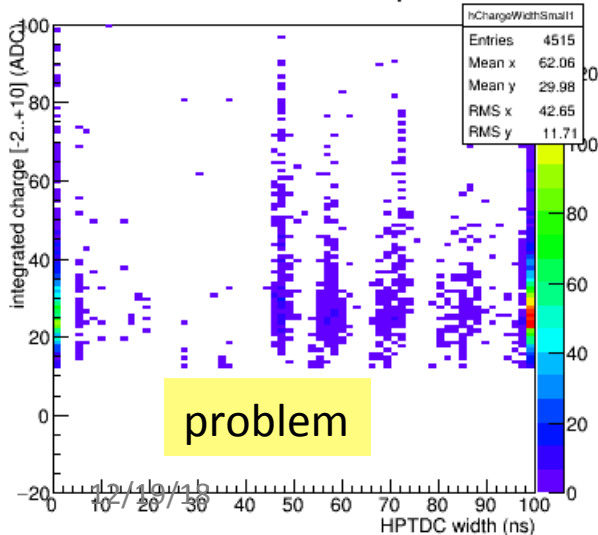
run 8809 AD bottom



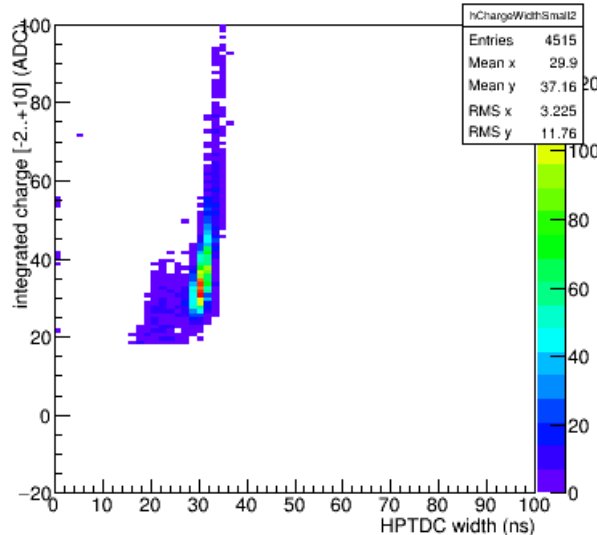
run 8809 AD top



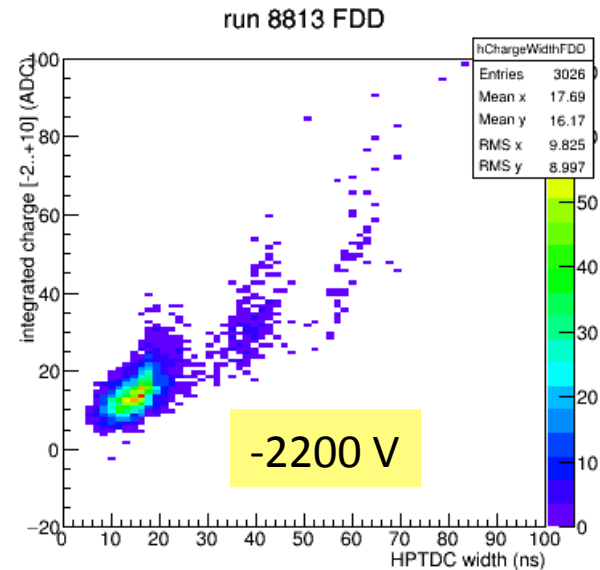
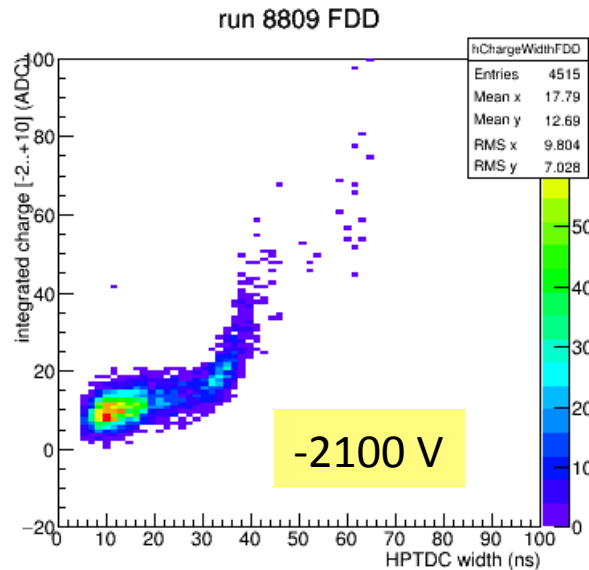
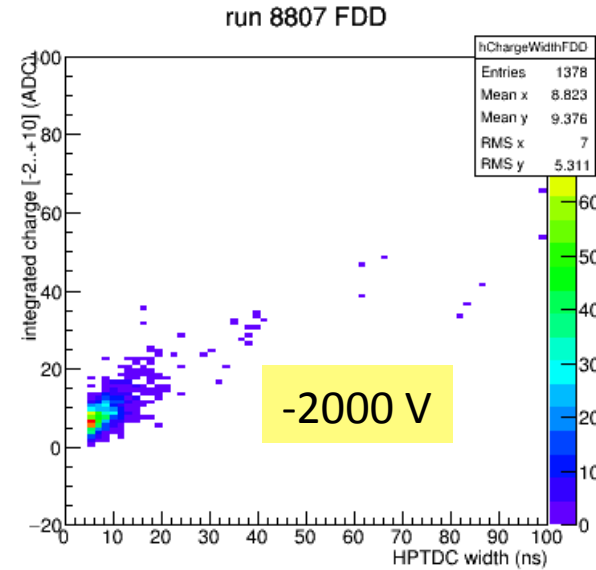
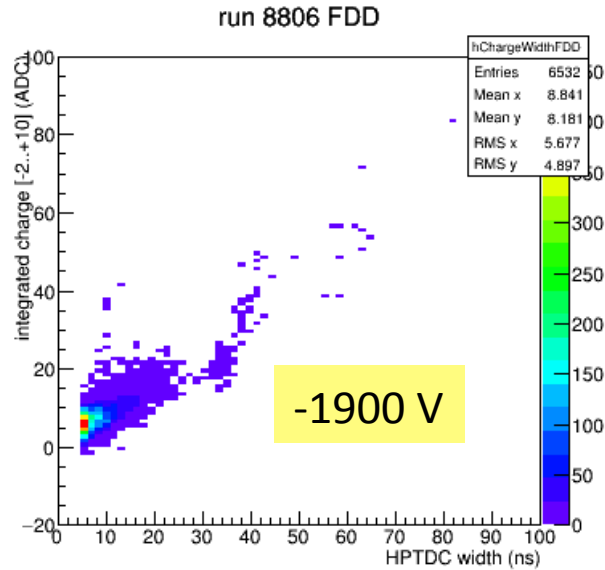
run 8809 small top



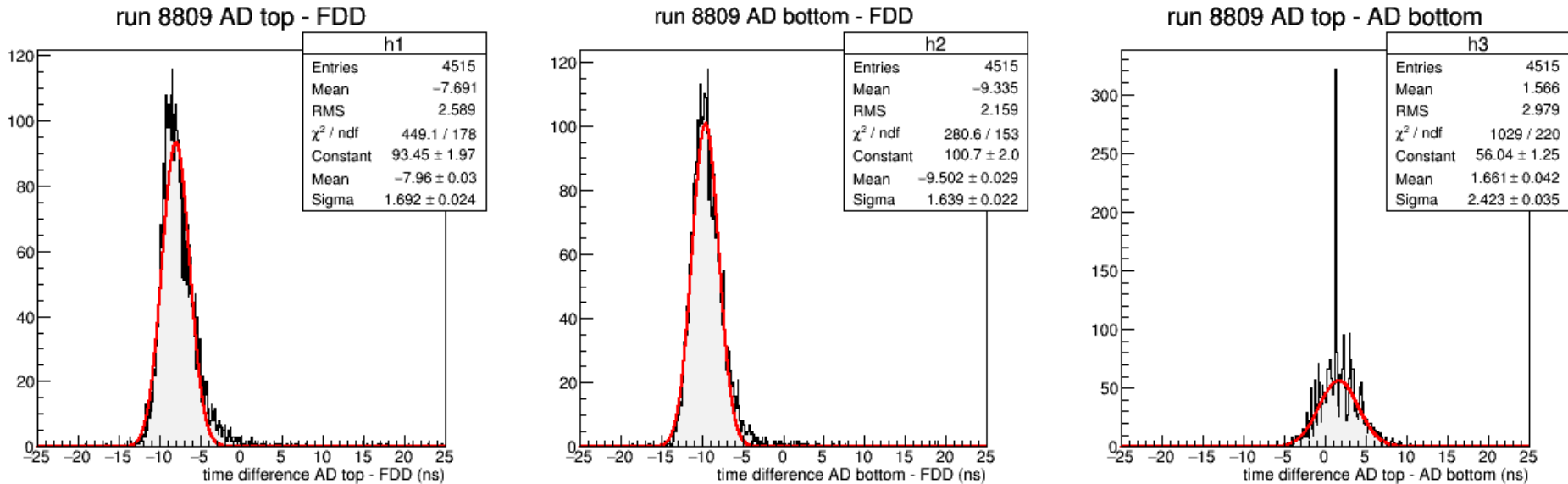
run 8809 small bottom



FDD charge vs width for different HV



Time differences (8809)

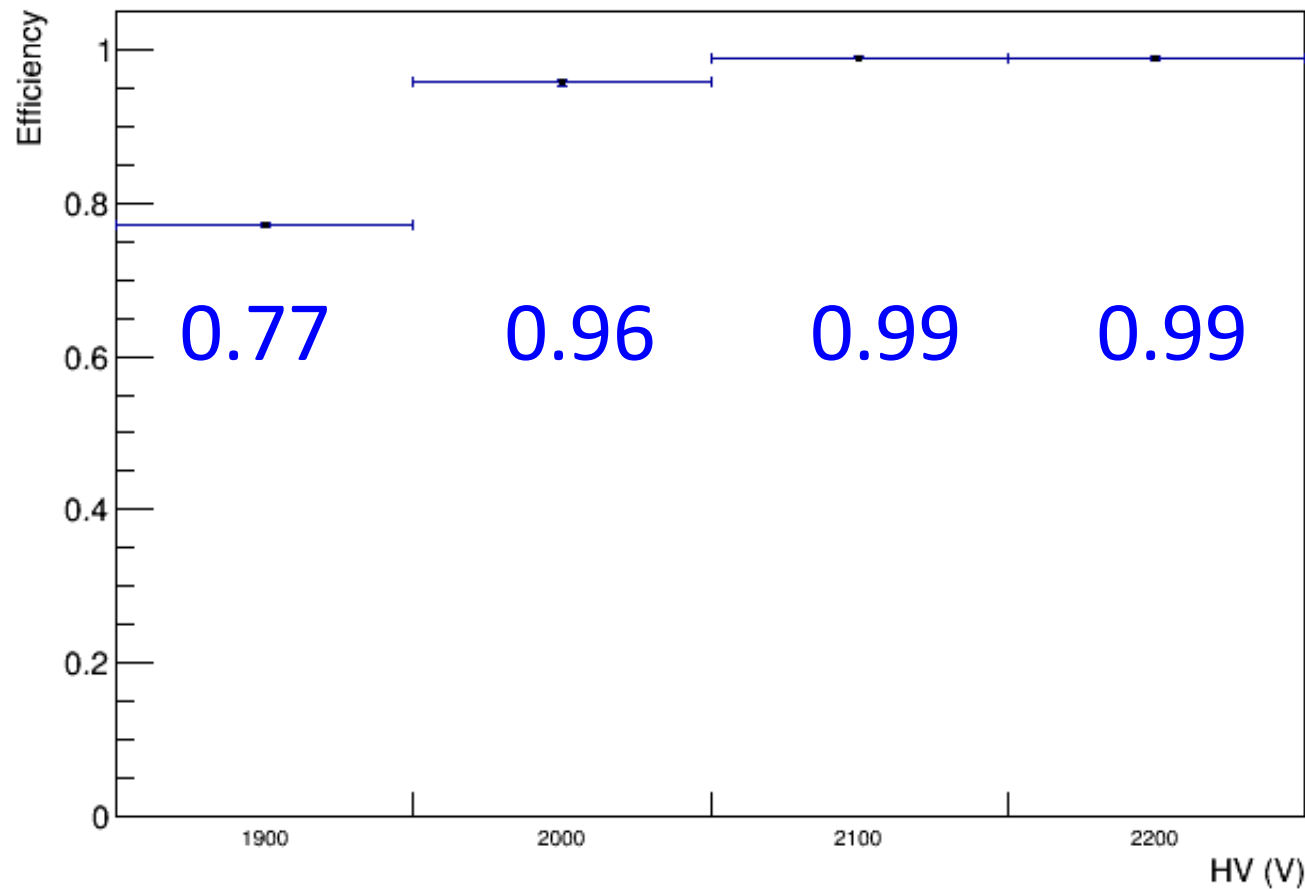


The width of time differences involving FDD is smaller than between the two AD modules

FDD plateau curve

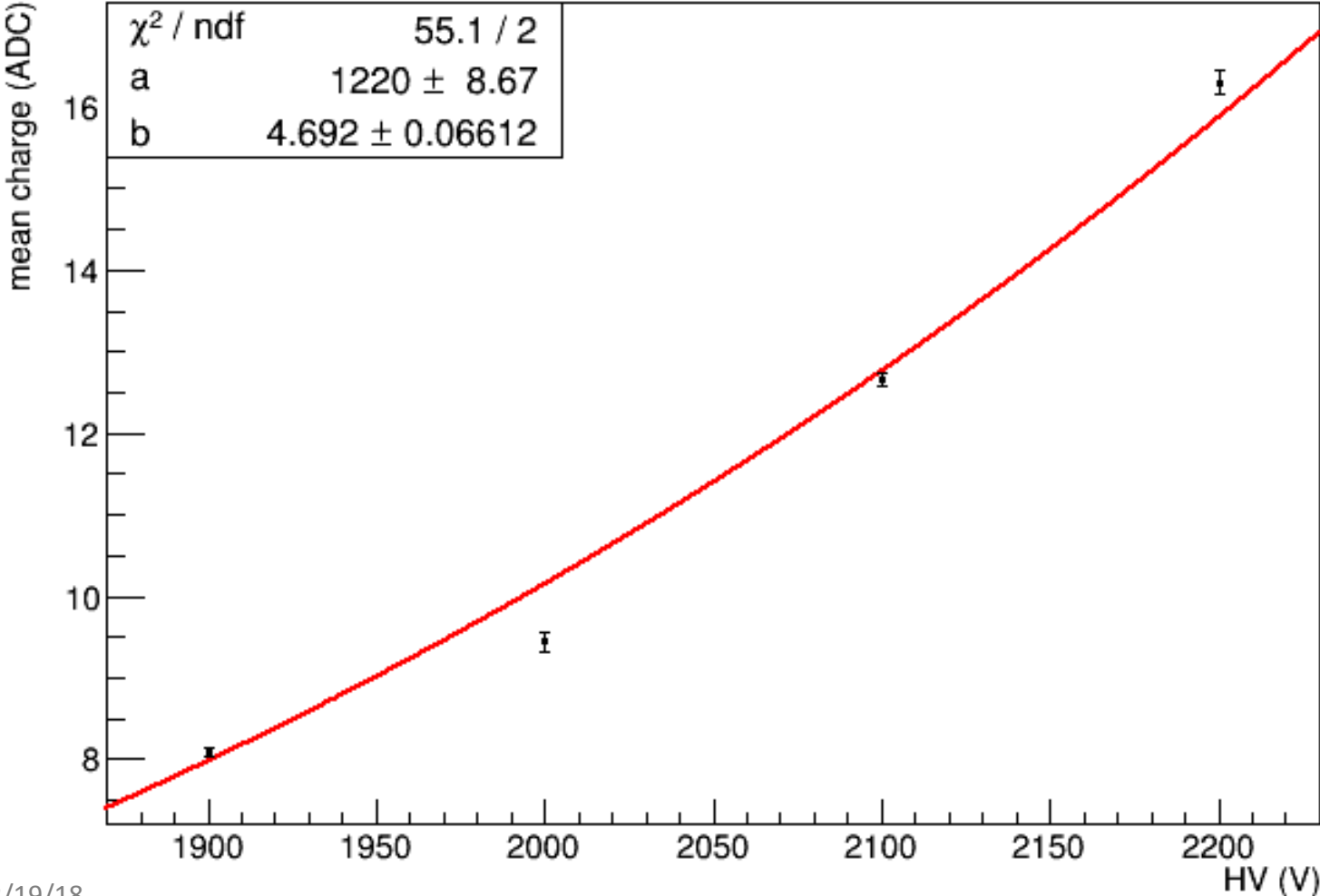
$$\frac{\#(\text{FDD} \ \&\& \ \text{AD}_{\text{bottom}} \ \&\& \ \text{Small}_{\text{bottom}})}{\#(\text{AD}_{\text{bottom}} \ \&\& \ \text{Small}_{\text{bottom}})}$$

FDD



FDD gain curve

FDD



Appendix

Missing time measurements /2

Per adjacent pad pairs: (using online channel numbers)

00-01 0.02%	08-09 0.18%
02-03 0.04%	10-11 0.31%
04-05 5.92%	12-13 7.74%
06-07 1.04%	14-15 0.32%

Per side

00-07: 2.38×10^{-5} % (A-side)
08-15: 2.37×10^{-4} % (C-side)