

Memo

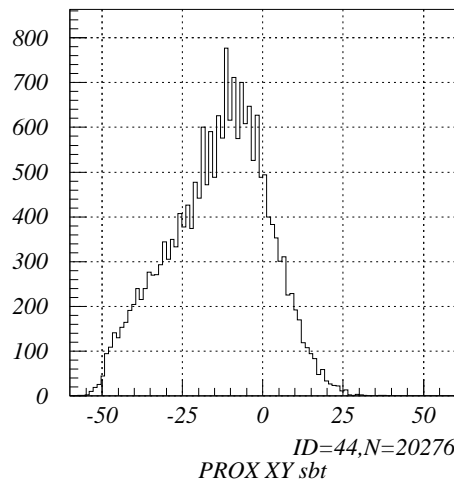
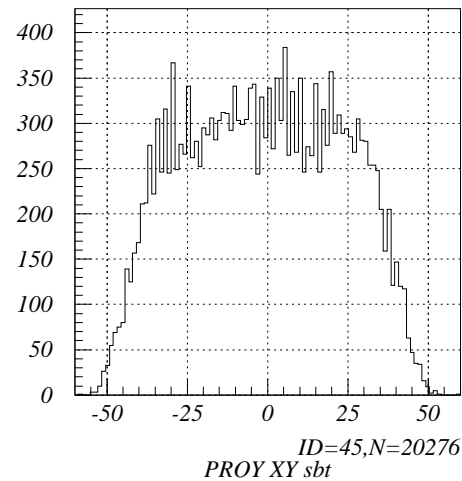
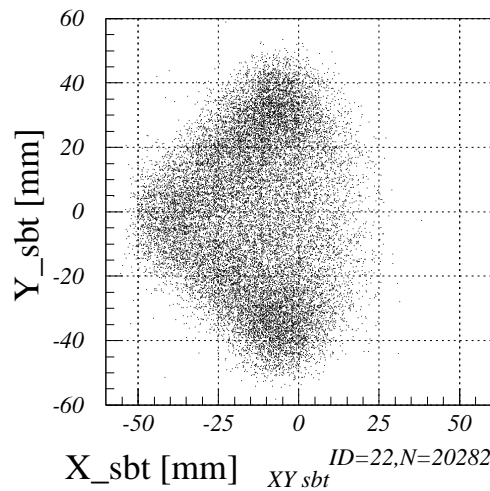
- Standard detectors during Samurai-Impact runs (^{79}Se 200MeV runs)

- SBT
- ICB
- (HODS)
- ICF
- BDC1, BDC2, FDC1, FDC2
- KDC240 (parasite test)
- TED

まだ色々おかしい所がありますが、

- scintillator : 0.2mm^t, 130x130mm²

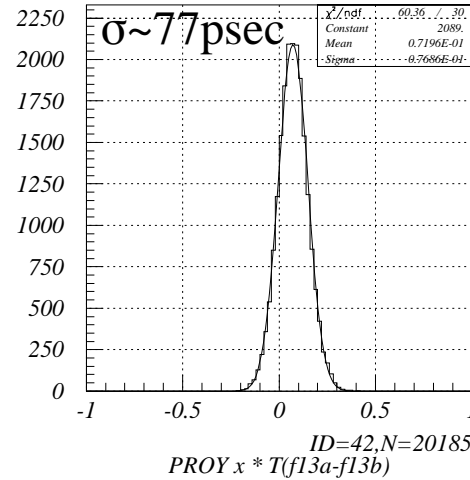
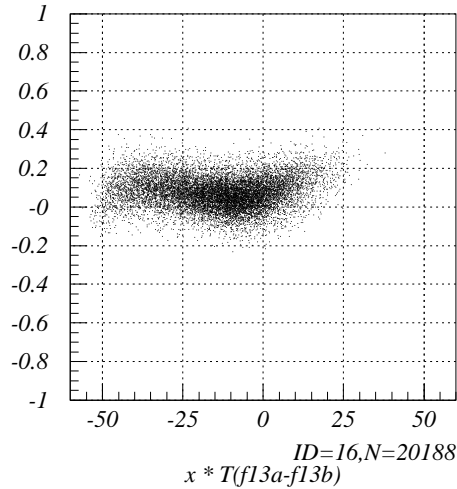
- beam profile (seen from beam)



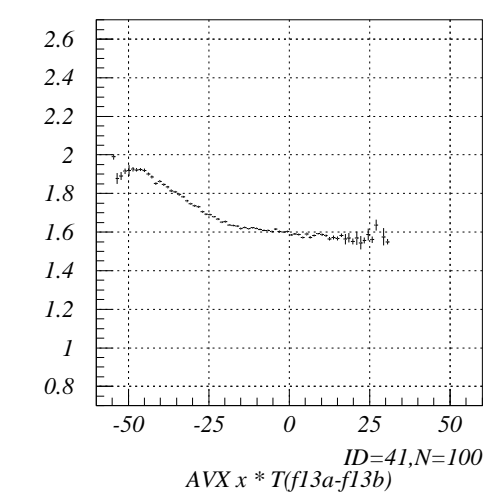
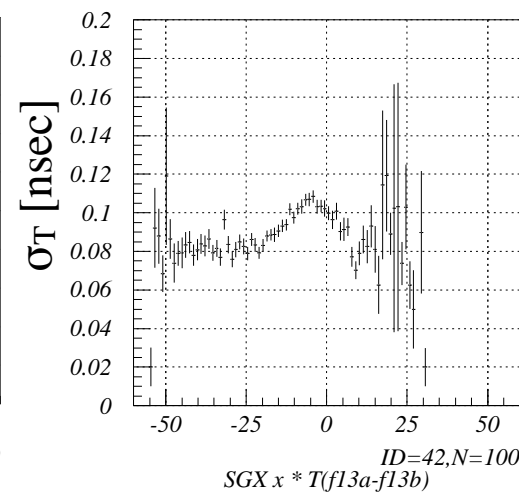
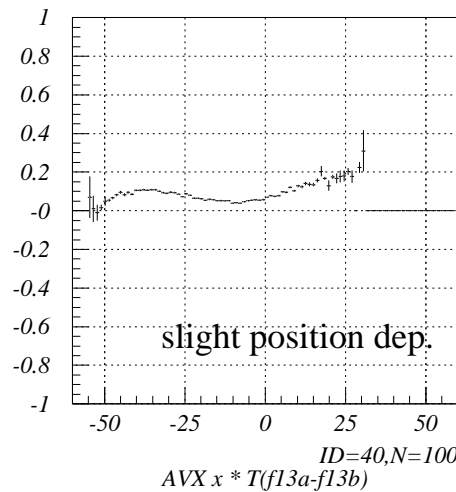
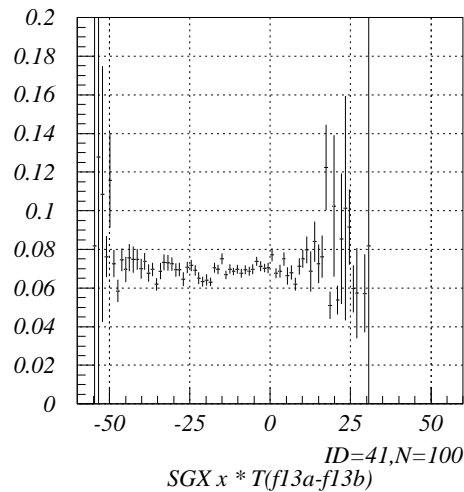
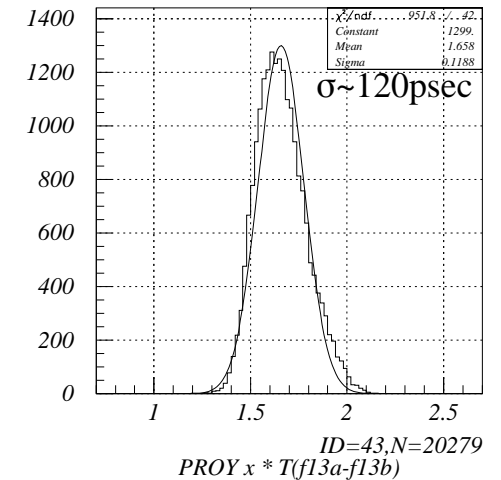
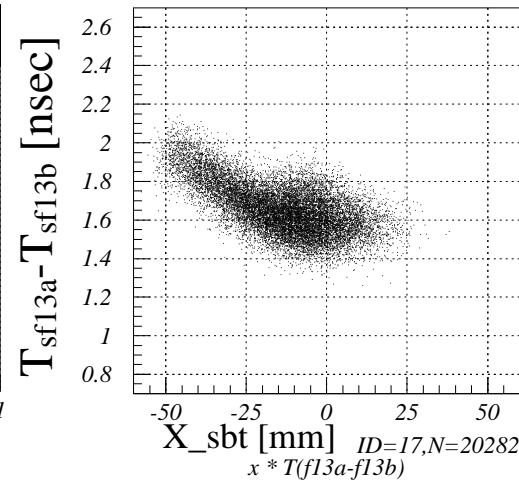
- low density at the center
- ADC_SF13b_left : slightly irregular
 - sf13bの方がpulse heightのY-dep.大

- Time resolution : $T(\text{SF13a}) - T(\text{SF13b})$

w slew

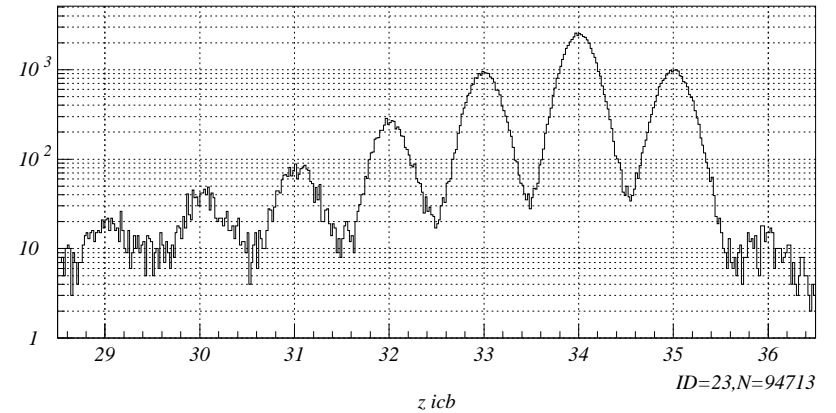
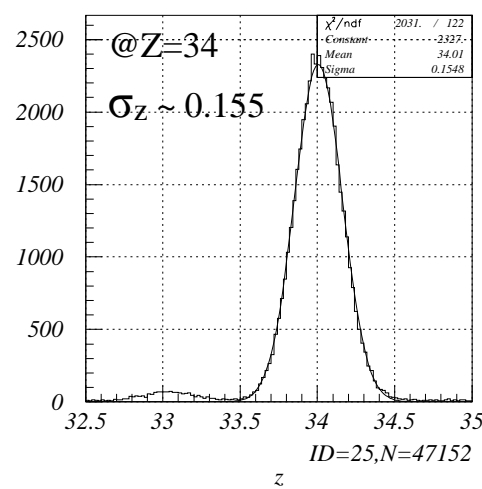
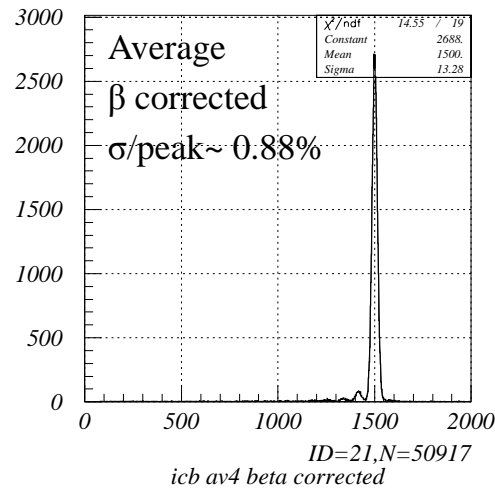
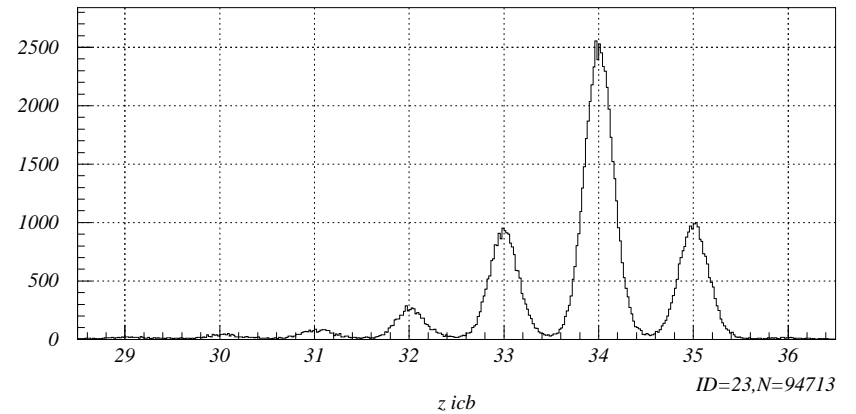
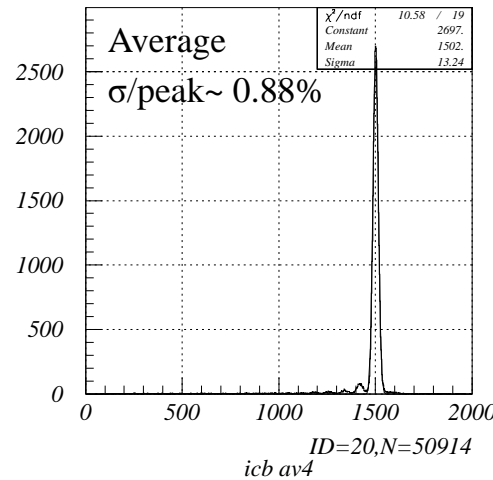
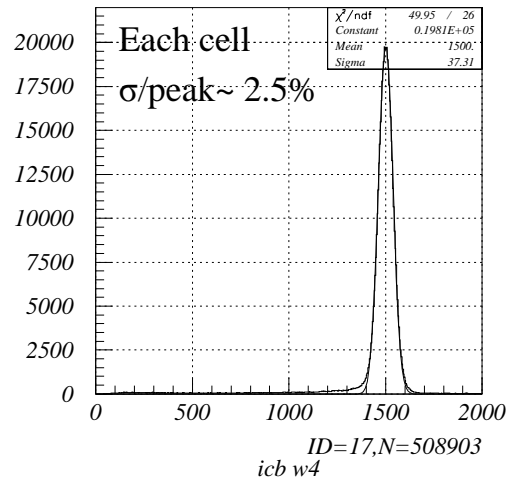


w/o slew



- slew : fitが難しかったのでメノコ: 最適値かどうか?
- $\sigma(T_{\text{SF13a}} - T_{\text{SF13b}}) \sim 77 \text{ psec} \rightarrow \sigma(T_{\text{SF13a}}) \sim \sigma(T_{\text{SF13b}}) \sim 55 \text{ psec} (?)$
- $\rightarrow \sigma([T_{\text{SF13a}} + T_{\text{SF13b}}]/2) \sim 39 \text{ psec} (?)$

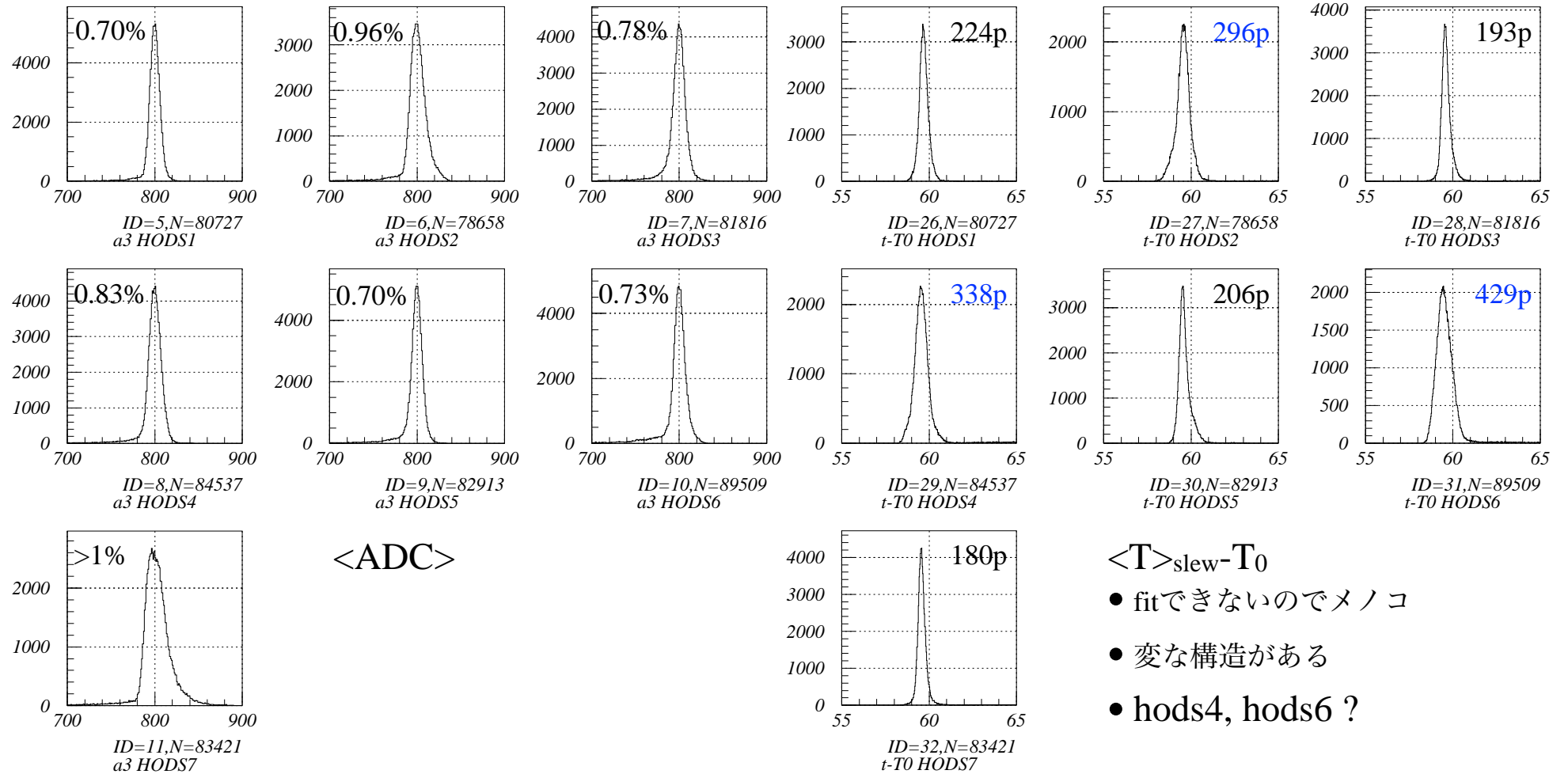
- pedestal : $A \sim 50\text{ch}$, $\sigma_A \sim 3\text{ch}$
- gain : peak $\sim 1567\text{ch}$, $\sigma(\text{peak}) \sim 39\text{ch}$, $\sigma/\text{peak} \sim 2.6\%$



$\sigma_z(\text{ICB}) \sim 0.16$ @Z=34
after $\beta(f7-f13)$ correction

• $2.5/\sqrt{10} = 0.79 < 0.88\%$

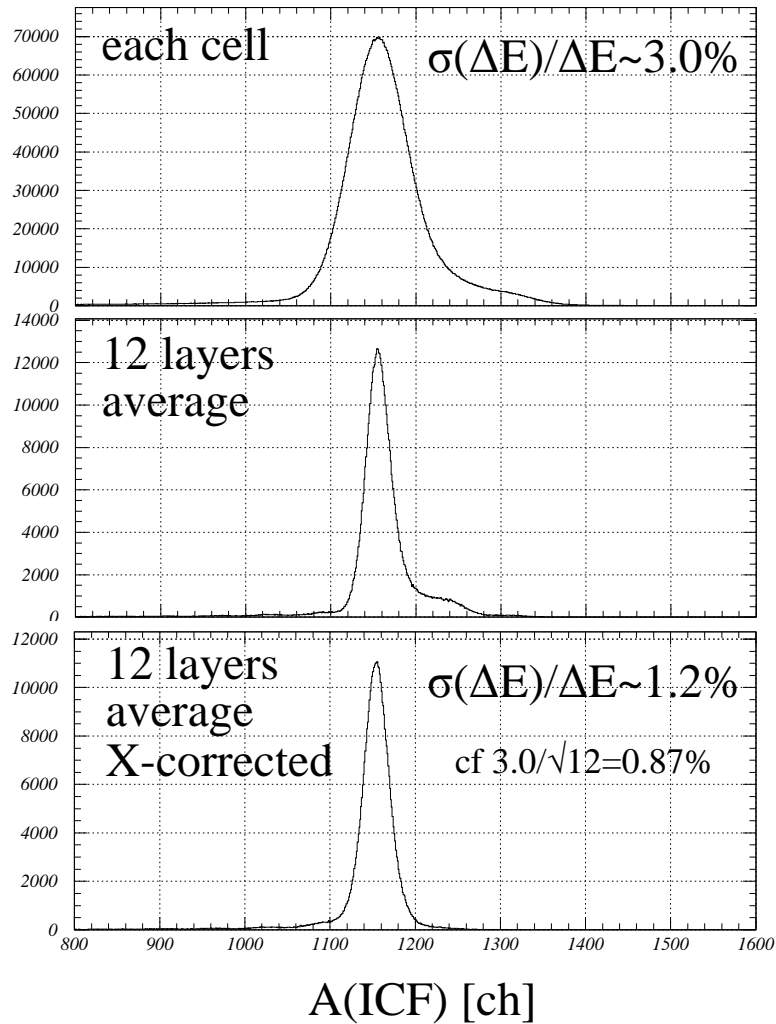
- time calibration : ~ 0.65 nsec/ch
- pedestal : 100~280 ch, $\sigma \sim 1.1$ ch
- gain (sweep run) :



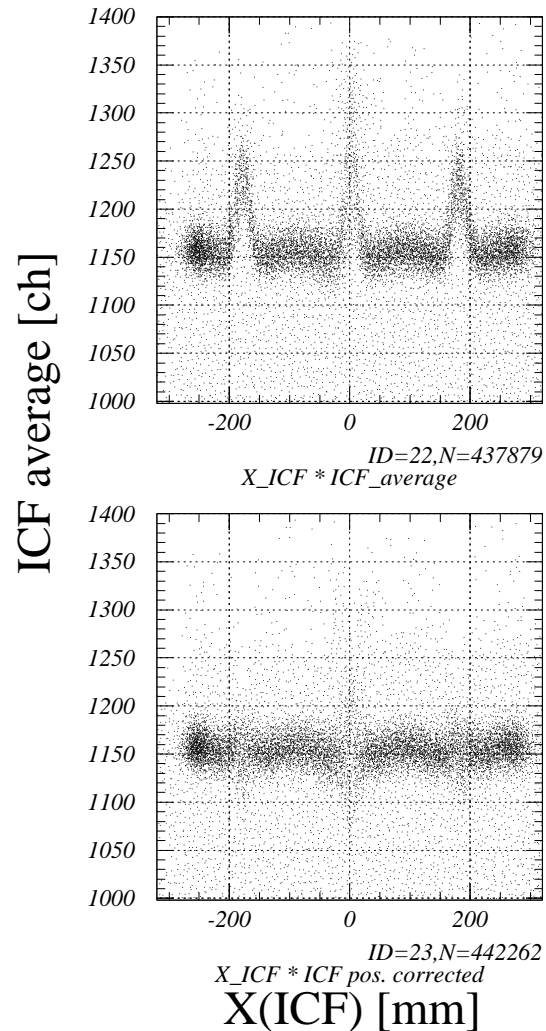
- fitできないのでメノコ
- 変な構造がある
- hods4, hods6 ?

- Pedestal : 12 ~ 120ch, $\sigma \sim 5$ ch
- Gain (sweep run) : gain variation(rms) $\sim 2\%$
 - after gain calibration : $\sigma(\Delta E)/\Delta E \sim 3.0\%$ for each cell. (cf) 2.5% for ICB

⁷⁹Se sweep run



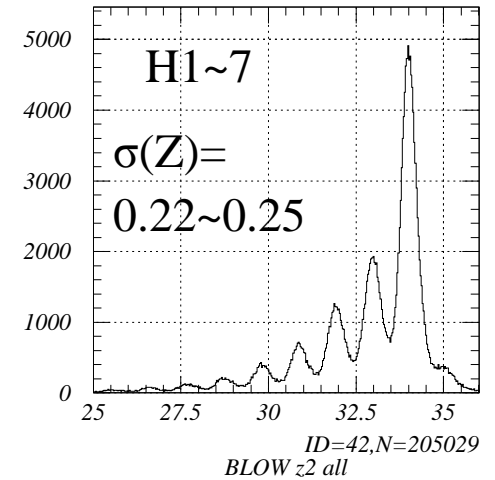
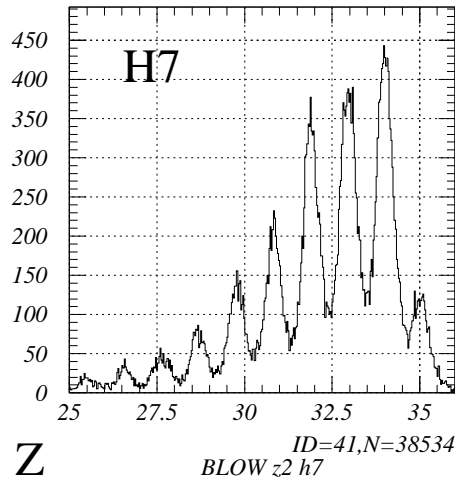
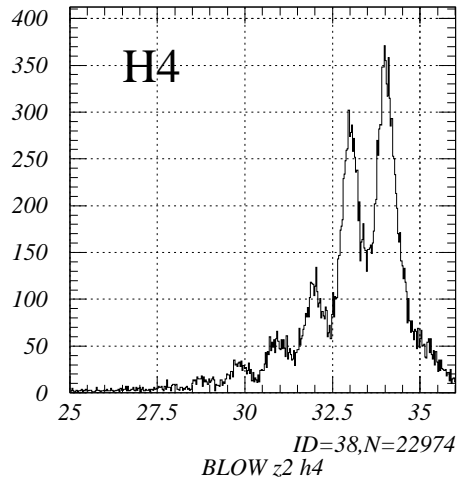
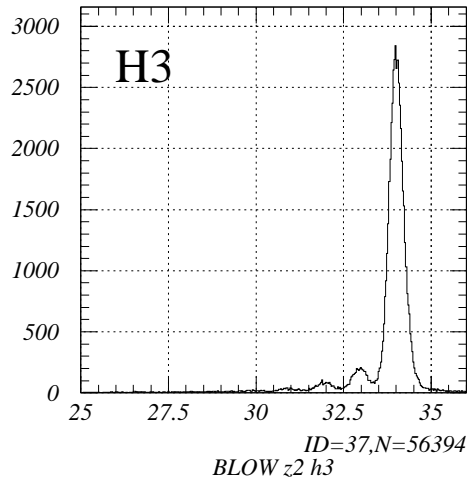
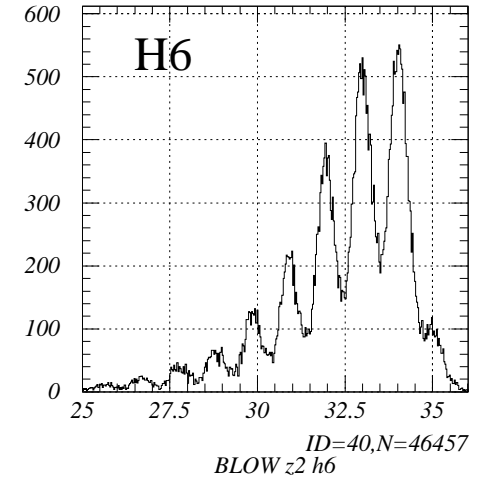
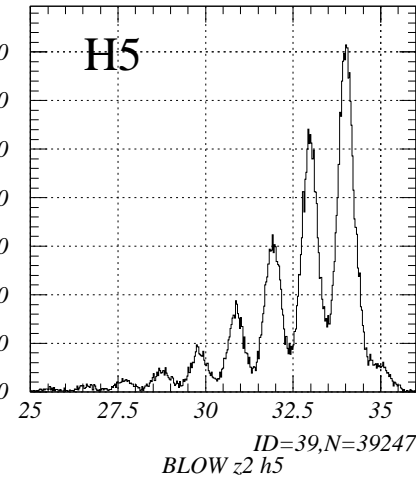
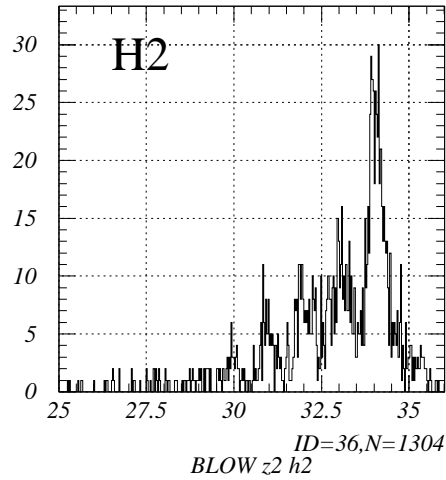
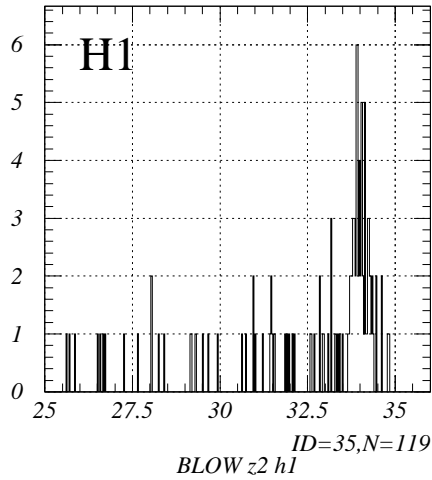
bump at segment boundary ($\sim \pm 20$ mm)



- $x(\text{ICF}) \sim 0$?
- additional structure

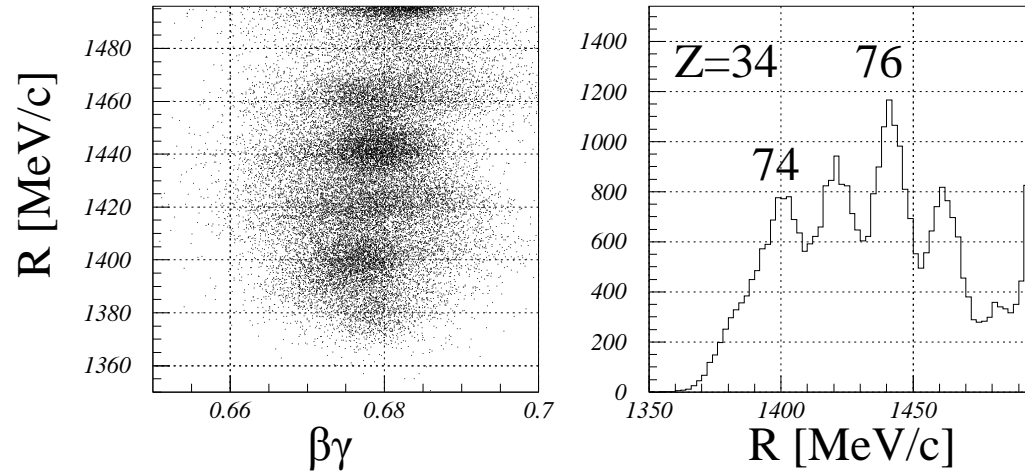
• $\Delta E(\text{ICF}) : \beta$ correction using TOF(target-HODS) $\rightarrow Z$

• Trigger= B*N



Z

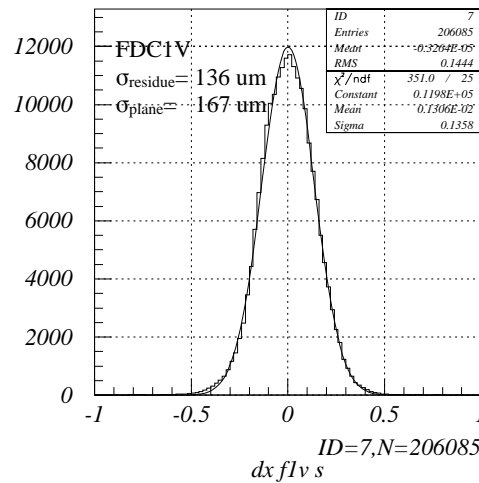
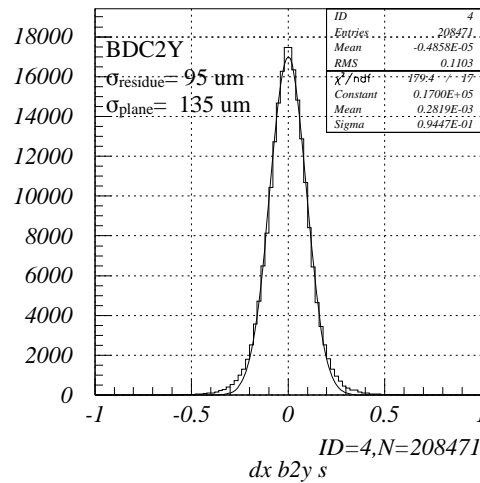
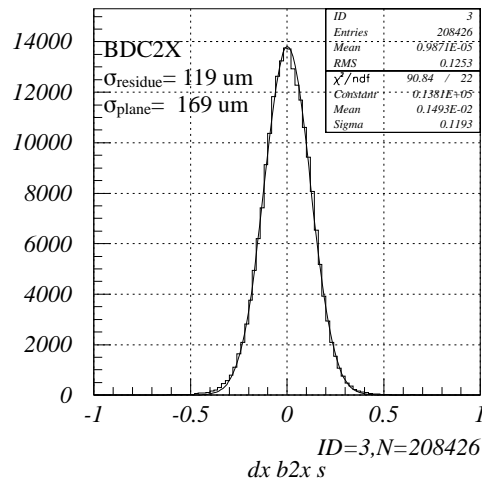
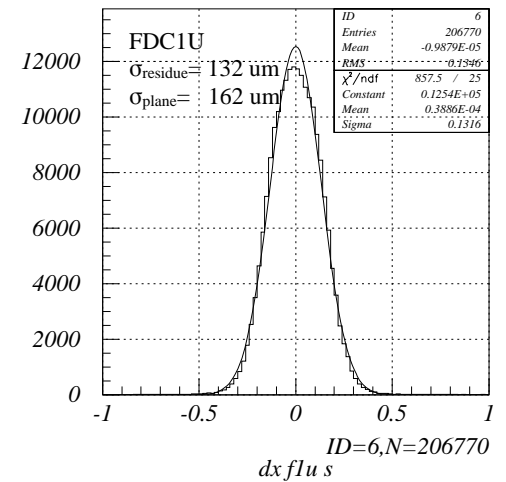
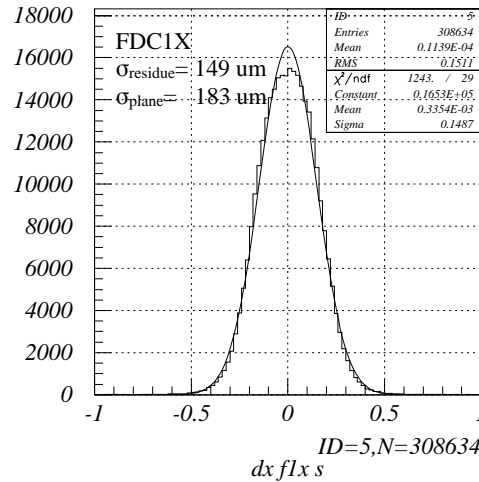
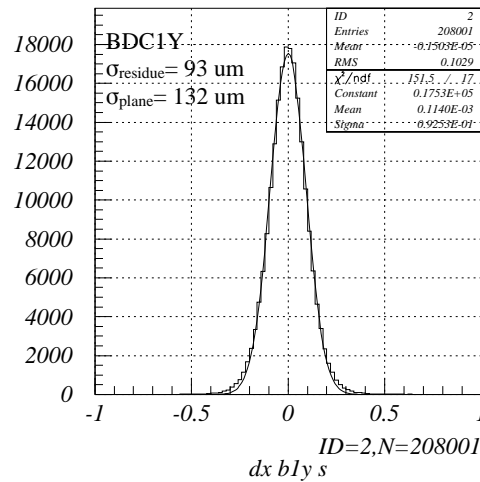
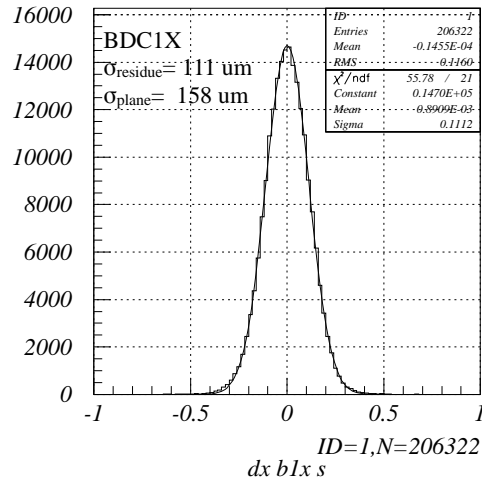
- Beam= ^{79}Se , Trig= B*N



- rigidity resolution ?
- TOF resolution ?

• BDC1, BDC2

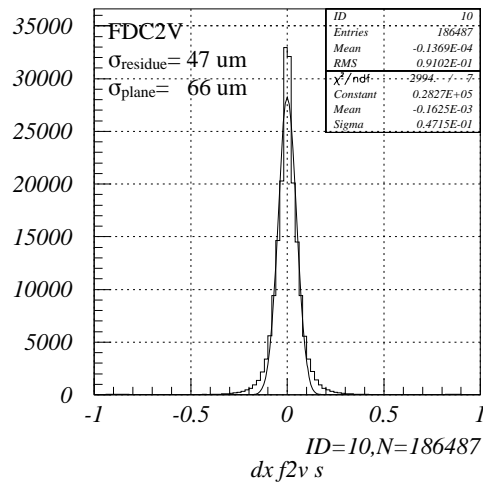
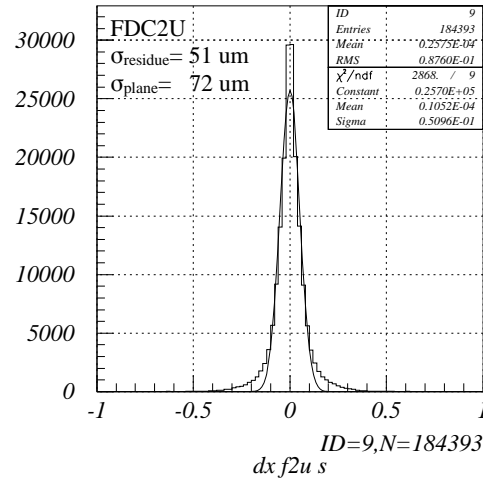
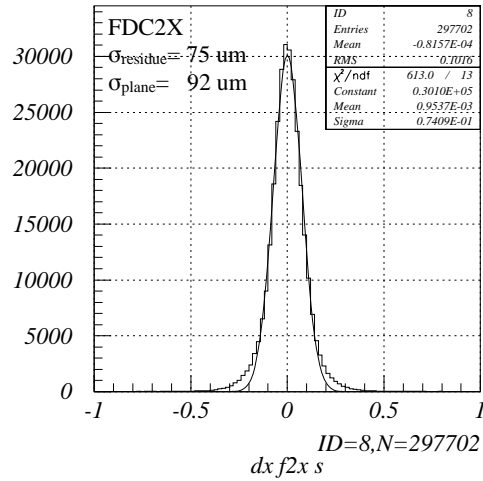
• FDC1



$\sigma_{\text{plane}}(\text{BDC}) \sim 140(\text{y}), 160(\text{x}) \text{ } \mu\text{m}$

$\sigma_{\text{plane}}(\text{FDC1}) \sim 170 \text{ } \mu\text{m}$

- FDC2



$\sigma_{\text{plane}}(\text{FDC2}) \sim 70(\text{uv}), 90(\text{x}) \text{ } \mu\text{m}$

- Setup

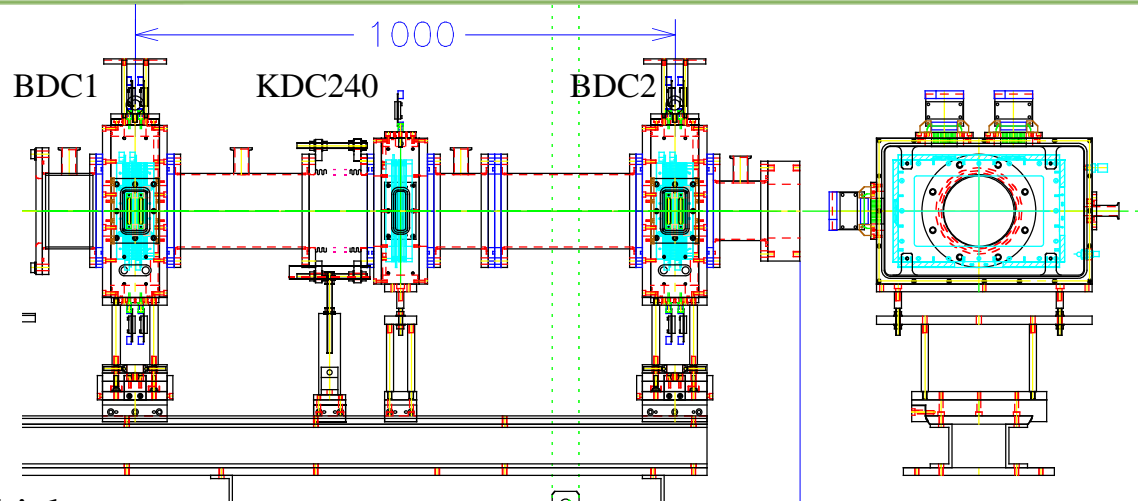
- set between BDC1 & BDC2

- KDC240

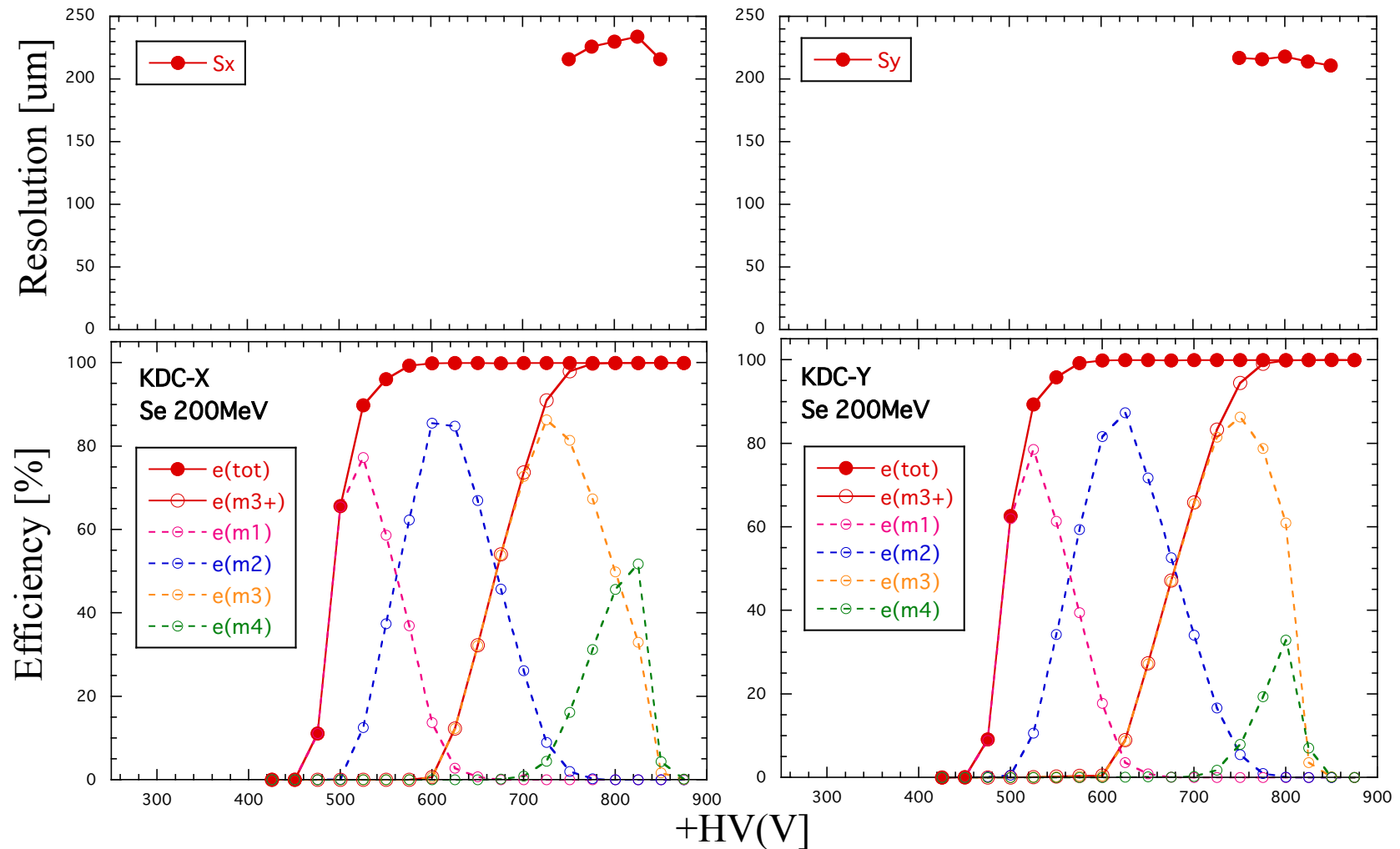
- cathode-readout drift chamber
 - strip pitch= 8mm, half gap= 5mm
 - effective area : 240mm(H) x 130mm(V)
 - #readout channels: 32(X), 16(Y) → 64ch AMSC VMETDC
 - gas: i-C₄H₁₀, P= 50 torr

- data

- Se 200 MeV/A : ΔE min
- Zr 100 MeV/A : ΔE max, $\Delta E(\text{Zr } 100\text{MeV}) \sim 2 \times \Delta E(\text{Se } 200\text{MeV})$
- (Se 100 MeV/A)
- (Zr 200 MeV/A : at 3 HV)

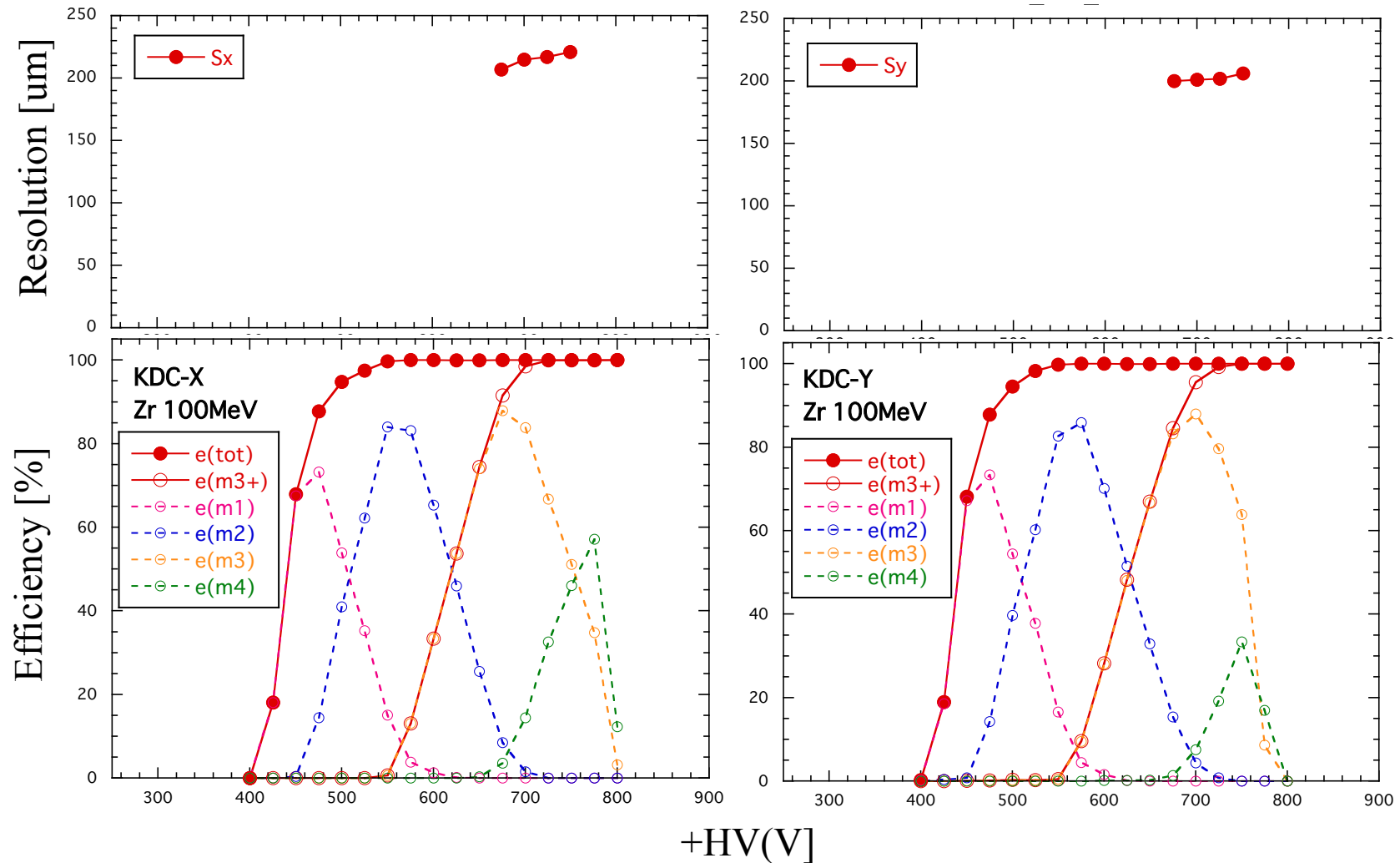


- ΔE minimum



- position resolution of BDC: $\sigma_{\text{plane}} \sim 150\mu\text{m} \rightarrow$ interpolation error negligible
- $\sigma(\text{KDC}) \sim 230 \mu\text{m}$ at the plateau, d_{eff} optimized

- ΔE maximum : $\Delta E(\text{Zr } 100\text{MeV}/A)\sim 2 \times \Delta E(\text{Se } 200\text{MeV}/A)$ $\Delta V\sim 50\text{V}$ for $\Delta G\sim 2$



- position resolution of BDC: $\sigma_{\text{plane}} \sim 110\mu\text{m}$ \rightarrow interpolation error negligible
- $\sigma(\text{KDC}) \sim 230 \mu\text{m}$ at the plateau, d_{eff} optimized

- Pedestal :
 - gate width= 800 nsec from pedestal current limitation
 -