

Memo on Samurai standard detectors for TPC-run (4.29~5.6)

- works done on 28-Apr-2016 (Thurs)
 - BDC1,2 : gas flow, HV
 - Vacuum
 - SBT1,2 : vacuum, HV
- data analysis :
 - commissioning run 1931

- **BDC1,2**

- Gas

- $P(i-C_4H_{10}) = 30$ torr set
 - $W(i-C_4H_{10} \text{ bottle}) = 20.8$ kg @2016.4.28 13:00 → ~5.9 kg left
 - Pressure control did not work for unknown reason (?)
 - They began to work after 15:00 4.28 for some unknown reason (?)
 - seems to be stable at 30 torr now.
 - (Murphy's law?)

- HV

- $V_{\text{cathode}} = V_{\text{pot}} = 400V$ for $Z=50$ @ 30 torr
 - same HV as TPC commissioning runs
 - leak current < 4 nA : seems to be OK

- **Vacuum**

- GV's all open: GV(STQ25 upstream), GV(SBT-BDC1), GV(BDC2 downstream)

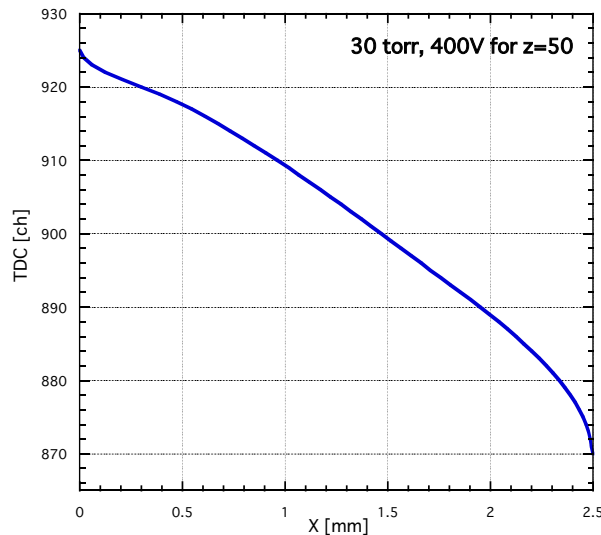
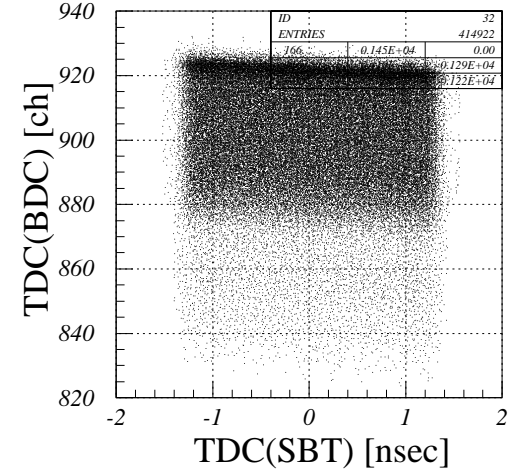
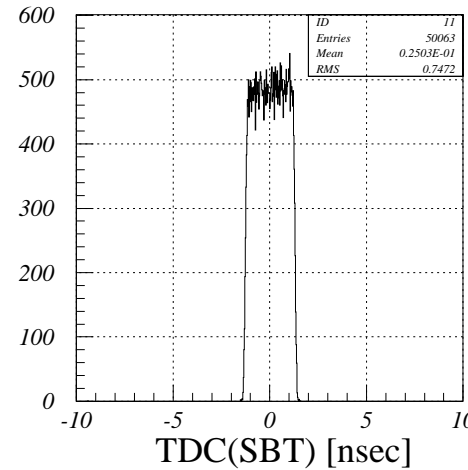
- **SBT1,2**

- vacuum OK, HV on
 - main HV's are on, BoosterHV's are off

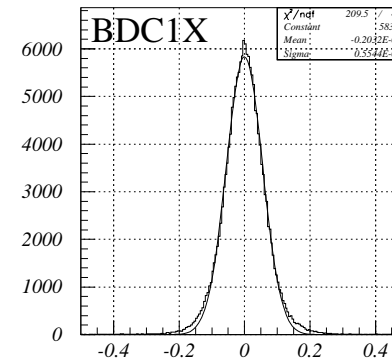
Channel	Vmon	Imon	HVmax	V0set	I0set	Hv	Status	Ch#
SBT1L	0999.20	0463.00	2003	1000.00	3000.00	0n		00
SBT1R	0999.40	0463.00	2003	1000.00	3000.00	0n		01
SBT2L	1024.40	0475.00	2003	1025.00	3000.00	0n		02
SBT2R	1029.60	0478.00	2003	1030.00	3000.00	0n		03
sbt1l_B1	0113.60	0000.00	2003	0113.60	3000.00	Off		04
sbt1l_B2	0251.20	0000.00	2003	0251.80	3000.00	Off		05
sbt1l_B3	0320.20	0000.00	2003	0321.00	3000.00	Off		06
sbt1r_B1	0113.60	0000.00	2003	0114.00	3000.00	Off		07
sbt1r_B2	0250.80	0000.00	2003	0251.20	3000.00	Off		08
sbt1r_B3	0320.60	0000.00	2003	0321.20	3000.00	Off		09
sbt2l_B1	0116.40	0000.00	2003	0116.40	3000.00	Off		10
sbt2l_B2	0258.20	0000.00	2003	0258.60	3000.00	Off		11
sbt2l_B3	0328.80	0000.00	2003	0329.20	3000.00	Off		12
sbt2r_B1	0118.00	0000.00	2003	0118.20	3000.00	Off		13
sbt2r_B2	0260.40	0000.00	2003	0261.00	3000.00	Off		14
sbt2r_B3	0331.00	0000.00	2003	0331.60	3000.00	Off		15

BDC @400V/30torr for z~50 from commissioning run 1931 3

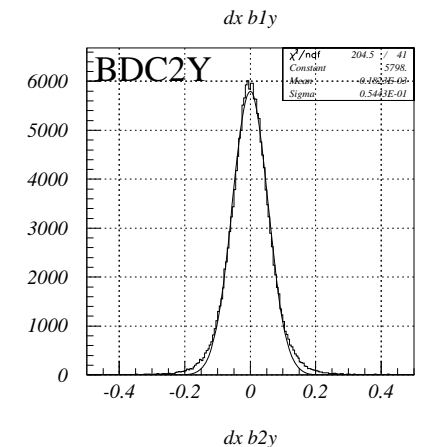
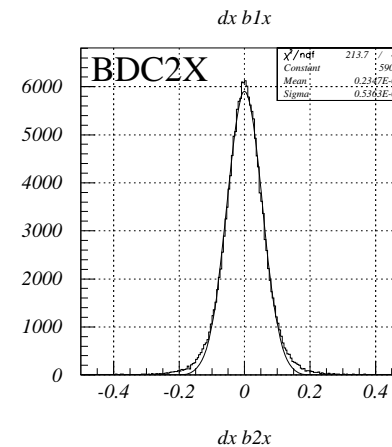
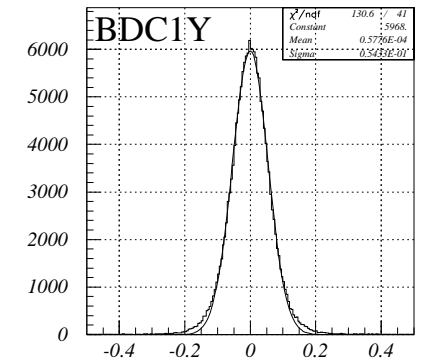
- run1931 : one of long runs at the end
- Trigger timing
 - trigger timing is not determined by SBT's
 - TDC(SBT1,2)
 - uniform distribution with 3 nsec width
- TDC(BDC)
 - need to be corrected using TDC(SBT)
- Track residue after STC calibration
 - $\sigma_{\text{residue}} \sim 54 \text{ um}$ for b1x,b1y,b2x,b2y
 - position resolution / plane
 - $\sigma \sim 77 \text{ um}$
- drift time (TDC) to distance



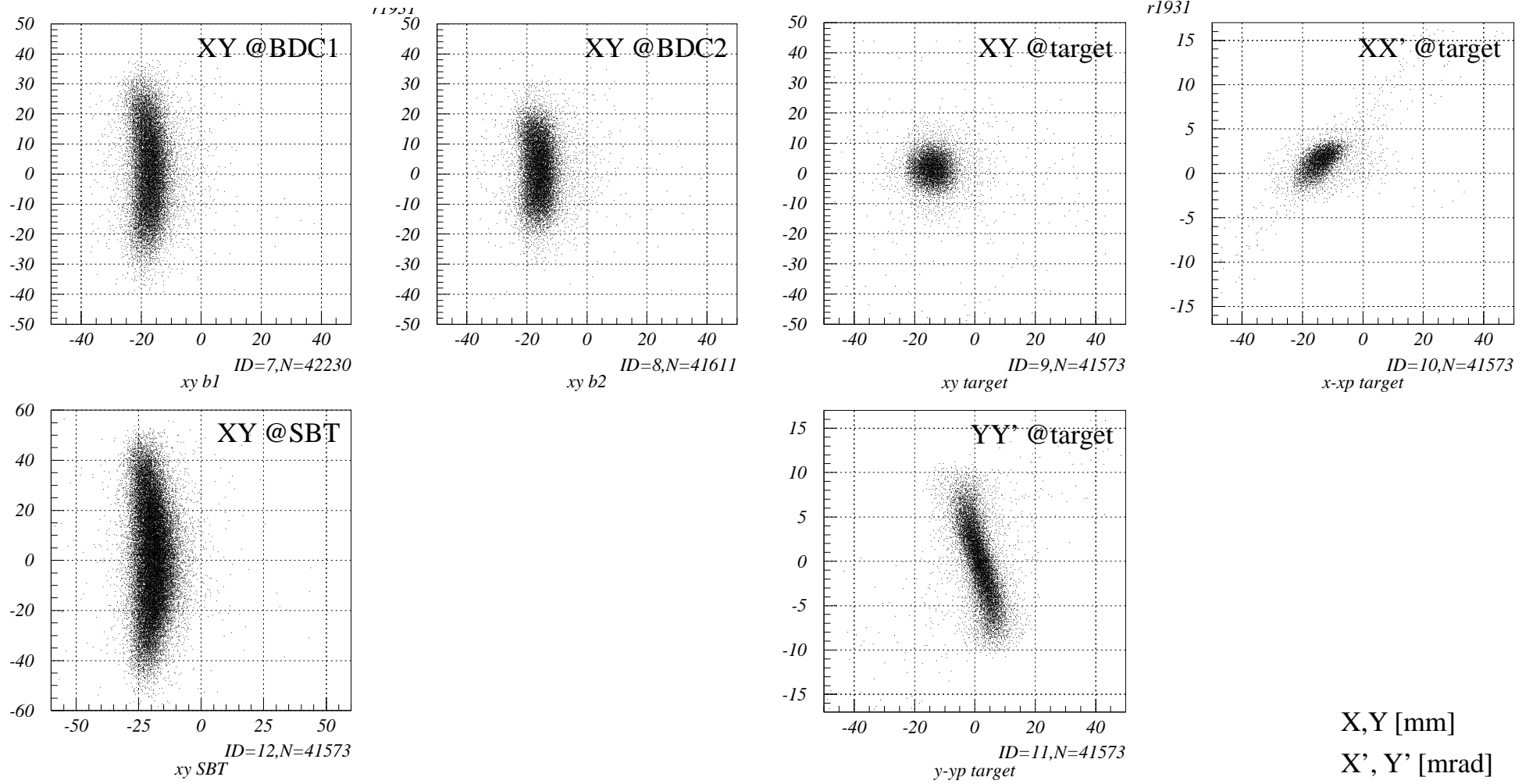
Residue distribution



r1931

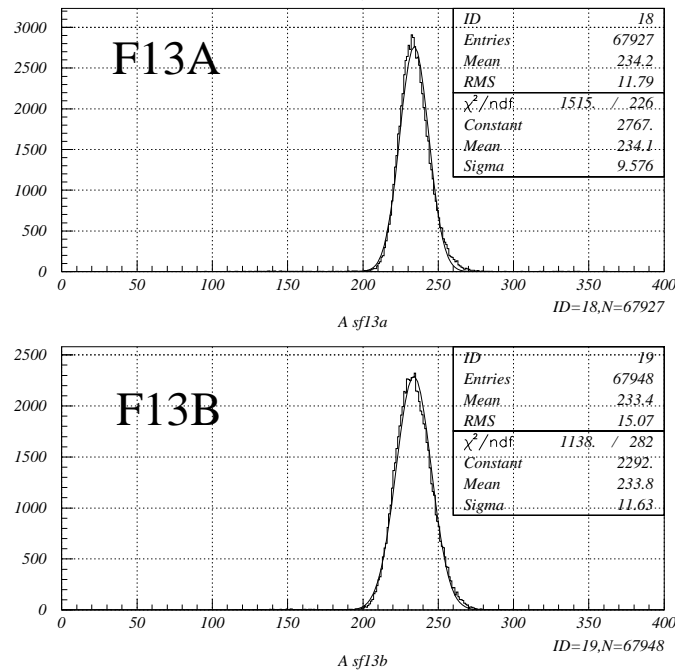


Beam phase space : run1931



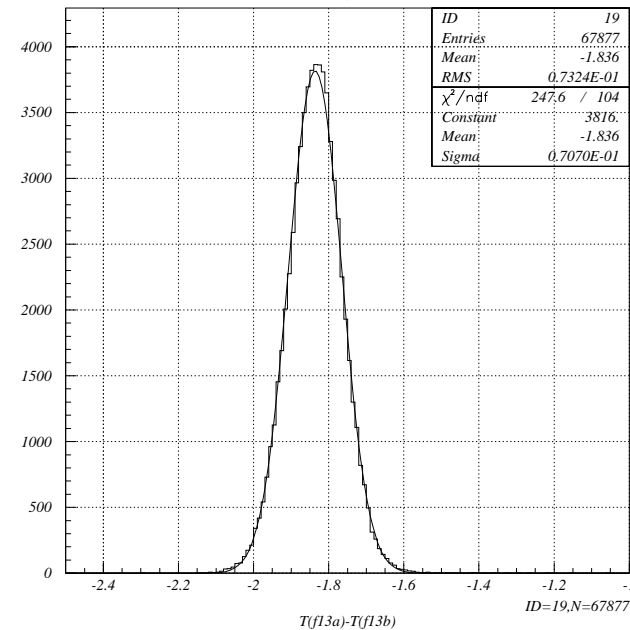
- HV set
 - signal~ 400mV @B3F patch. cf: $V_{th}(B2F) = 40mV$
 - HV : ~1000V (F13A), ~1030V (F13B), with booster on
- Scintillator
 - 120mm x 120mm x 0.2mm ^t

• Pulse height distribution



- σ_A/A : ~4.1%(SF13A), ~5.0%(SF13B)

• Time Resolution from T(F13A)-T(F13B)



- $\sigma_T (T_{F13A}-T_{F13B}) \sim 71$ psec
 - $\rightarrow \sigma_T \sim 50$ psec